Volume 3, Number 4

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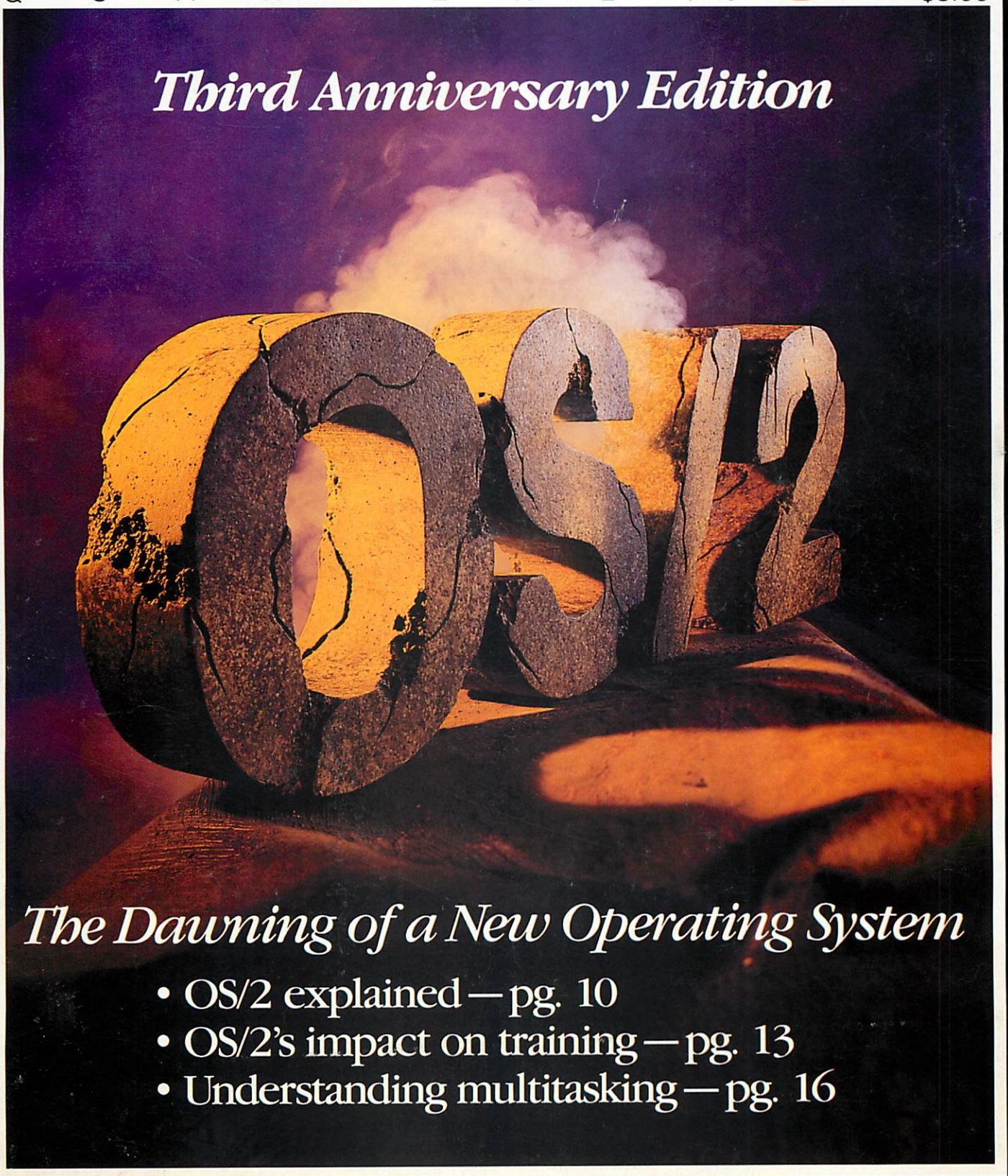

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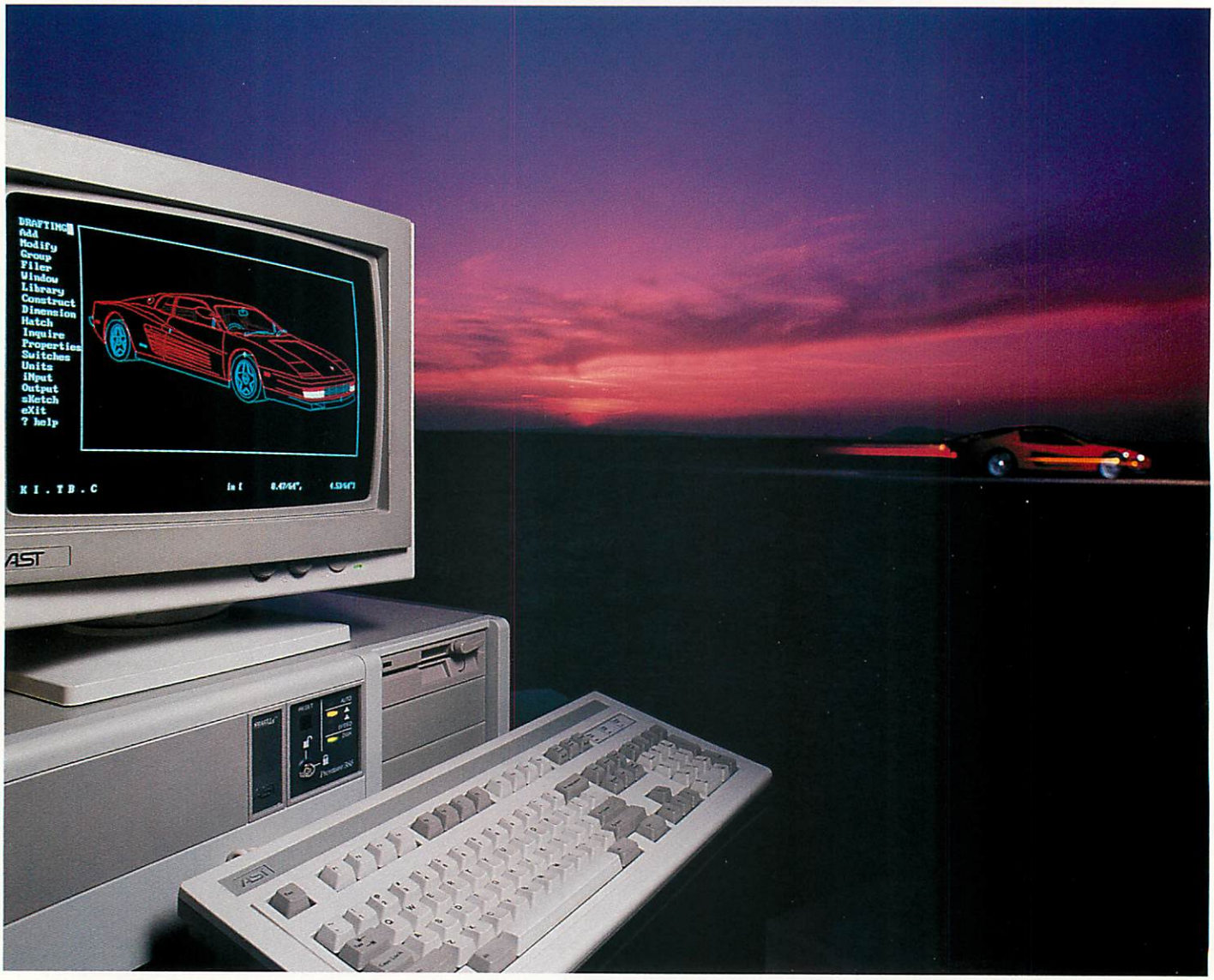

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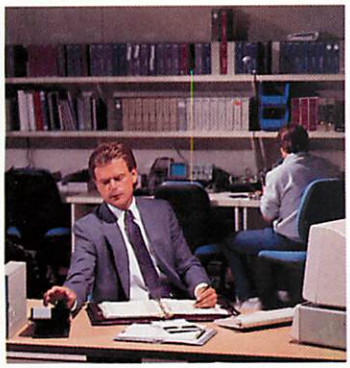

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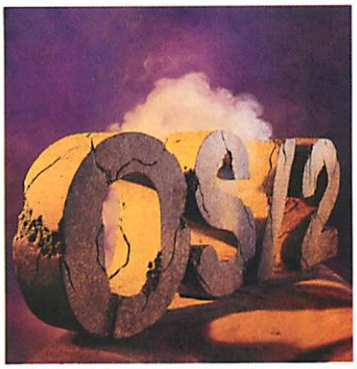

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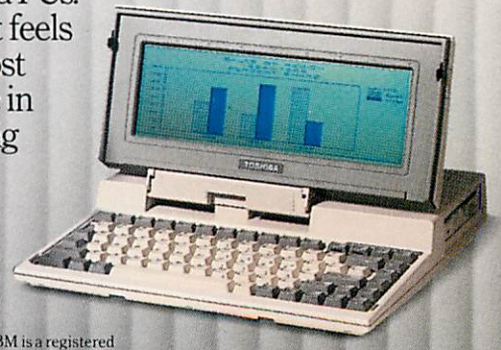

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In Touch with Tomorrow

TOSHIBA

Toshiba America Inc., Information Systems Division

Editorial

Preparing for Technology in the Next Century

By Alan P. Hald and Jeffrey D. McKeever

This issue of the *MicroAge Quarterly* has a focus on new software being developed to fully utilize the current generation of microprocessor technology. This technology, based on the Intel 80386 microprocessor, effectively puts minicomputer power on the desktop. Yet, this power cannot be fully realized unless software is available to take advantage of it. In the microcomputer industry, technology has always been running ahead of applications. As a result, a vast reservoir of untapped capability will drive the computer industry's growth well into the '90s. By the year 2000, microchip manufacturers will be packing one billion components per chip. At that level, the power of today's super computers can be shrunk to the size of a desktop computer system and purchased at desktop workstation prices!

With that kind of technology coming toward us, the challenge will continue to be what to do with all that computer power. The reality of that challenge is something like spending money. Someone who is making $20,000 per year wonders what they would do with a $1,000,000-per-year income, while those with a $1,000,000 income wonder what they would do without it. Nevertheless, the future will be very exciting in terms of new applications and growth opportunities.

One of the biggest challenges today is how to reduce the time it takes to use a computer system. More powerful systems will allow us to be less concerned about computer literacy and focus on building "human literate" computers. Think about it. How many "automobile literate" people are driving cars today? We drive automobiles rather easily because they are designed to be as human literate as that mechanical device can become, even to the point that they talk back to us.

The same will be true for computer systems. In the last several years, the acceptance of the graphical interface pioneered by Apple in its Macintosh system and, most recently, extended to DOS-based computers through Microsoft Windows, Desqview, and other similar approaches has simplified the way we "talk" to our computers. In the early '90s, handwritten entry may become a low-cost option, substantially reducing the time for nontypists to become proficient on a system. These innovations have reduced our need to learn computer languages and are freeing nontypists from the drudgery of extensive keyboard entry.

The *MicroAge Quarterly* is here to keep you abreast of the latest changes and how you can help your organization to be prepared for the coming changes. The MicroAge Computer Store Network is here to help you implement the new technologies as they become proven and cost effective for your businesses. ▣

Alan P. Hald

Jeffrey D. McKeever

The Changing Relationship Between Info

Change is the one constant in Information Centers (ICs). In the early '80s, many medium- and large-sized companies established ICs to provide training, hardware and software support, and a friendly ear to business professionals grappling with their first computers. Since then, PCs have spread like wildfire from a handful to the hundreds. Dependence on them has grown exponentially, making downtime intolerable. And though many still simply stand alone, an increasing number form complex links with each other and larger processors.

Charged with guiding users through these transformations, the IC staff is continually bombarded with demands for increased service. Not surprisingly, these supporters are themselves in need of support. They're finding it at a somewhat nontraditional source — computer dealers.

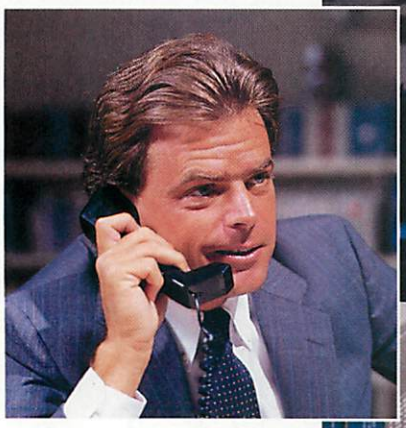
Such relationships buck the trend begun in the early days of both partners. Start-up ICs had little respect for computer dealers, considering them box peddlers with little or no knowledge of the corporate environment and its particular problems. "Some dealers didn't even know how to submit a bill," remembers Naomi Karten, a Boston-based consultant specializing in ICs. "They didn't understand that if one department doesn't pay, you don't hold another one hostage by refusing to do their work."

To some extent, the IC and the dealer were adversaries. Both had different ideas about PC implementation. The IC was busy building standards on which to base future growth. Dealers, on the other hand, were pushing bigger and better boxes and peripherals, but not much in terms of support.

That's past. The increased maturity, expertise and professional savvy of computer dealers specializing in the corporate market have made them good business partners for a number of more open-minded but overloaded ICs. For companies nationwide, such relationships are providing solutions to troublesome problems.

"A lot of companies now prefer to work with a corporate-oriented dealer," says Karten. "They know they can turn to this person for quick orders, education, demonstration, and training. It can develop into a very good relationship." Now in sync with their corporate counterparts, such dealers provide the service, support and advice that keeps their clients ahead of the competition.

ICs have several specific problems that dealers help solve. According to a



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rmation Centers and Computer Dealers

By Jennifer E. Beaver

recent IC survey by *Information Center* magazine (Boston, Mass.) and market researcher Computer Intelligence (La Jolla, Calif.), IC staffing was the primary concern of many respondents. While 52 percent have from one to five staffers, the majority of those surveyed serve from 100 to 1000 users.

Often, the IC can't keep up with demand. "There's an overabundance of questions coming in, and people are complaining," explains Karten. "Even those that got an additional staff member or two still feel overwhelmed because of the increase in the number of users, many of whom are still on a steep learning curve."

ICs entice professionals to use certain software by providing support and training for these recommended packages. But few ICs have the clout to actually forbid the use of others. As a result, the already short-staffed IC is spread even thinner by fielding questions on nonsupported software.

In Dallas, one business with 2500 PCs keeps an extra office for MicroAge manager Judy Mertz. "When the IC is backed up, the users come to me and my staff," explains Mertz. "We support them. It gives the client an extra arm. The end result is that when the users are happy, the IC looks good to management."

In Irvine, Calif., Columbia Savings and Loan IC manager Kathy Chambly turned to a local dealer for software advice and support. This shift in strategy followed frustrating attempts at getting aid directly from software manufacturers, which frequently put her call on hold for up to 45 minutes. Now, Chambly's new business partner researches new products for the financial institution and helps train users.

Software isn't the only component requiring ongoing support and maintenance. Hardware failure can cripple companies that run on computers. But maintaining a cache of replacement parts and providing an on-call service person is beyond the scope of most ICs. Many lack the staff, the space and the finances for in-house maintenance. When those critical machines go down, however, service must be swift and competent to put them right again.

A major East Coast shipping line relies on a nearby dealer for PC supply and maintenance. The dealer provides the equipment, loads the software, installs the master menu and configures each PC for the individual user. Whenever one of the microcomputers fails, the dealer fixes it, "swiftly and silently, so we hardly even know they're there," comments Jeff Kaplan, the com-

pany's microcomputer specialist.

For such specialized services, corporate-oriented dealers charge more than those who cater to individuals. Businesses believe it's worth it. "We pay between 10 and 15 percent more than the bottom market price for product and service, but they've eliminated the need to have a bunch of little men with screwdrivers running around," says Kaplan.

At the same time their responsibility to local users has grown, ICs have expanded their coverage to remote business professionals as well. While most ICs successfully answer software questions over a hotline, replacing bad hardware parts is pretty tough by phone. Just as the ICs don't have resources for local hardware maintenance, neither do they have the wherewithal to recycle faulty parts or troubleshoot malfunctioning equipment for off-site users.

Computer dealers are plugging the gap. The IC at Jeff Kaplan's shipping company, for example, supports users in 60 locations in 54 countries. His dealer ships fully-configured PCs to these far-flung users. When problems occur, the users send back the faulty part and the dealer sends a new one. One prerequisite: These remote users must be technically astute enough to identify the problem part.

Rohne-Palanc, a French company that bought the agricultural-chemical division of Union Carbide, supports a number of out-of-the-way field offices from its base in Raleigh, NC. Equipped with 2400-baud modems, Lotus 1-2-3 and customized software, 55 of IBM's Personal System/2 computers and their operators represent Rohne-Polanc in remote agricultural communities throughout the United States. These off-site business professionals take soil samples and analyze them using the customized software. The resulting information helps them recommend the proper chemical mix to fight everything from insect infestation to poor soil nutrition.

A tremendous resource for rural crop-growers, these field offices could cause major maintenance headaches for administrators back in Raleigh. For many of the field offices, the nearest IBM dealer is over 150 miles away. To ensure fast service from them, Rohne-Polanc would need an individual contract with each one.

Instead, a computer dealer in Raleigh provides a single contact point for all regional computer placement and repairs. MicroAge franchisee Steve Weis recently shipped the fully-configured PS/2s to the off-site professionals. When a glitch occurs, as it has so far with one monitor and two CPUs, the users send Weis the parts. Like those at the shipping company, these users also can identify a component gone bad. His spare PS/2, continually restocked with recycled parts, provides a steady stream of replacement components. The turnaround time is two days when both parties use an overnight mail service. The transfer happens automatically with no bother on the part of the IC.

Weis' grasp of his client's need was based on first-hand knowledge. A former controller for a major agricultural-chemical business, he knows all about those remote field offices and the difficulty companies experience supporting them. "I spent half my life flying into Los Angeles, then climbing on a puddle-jumper bound for the San Joaquin Valley or tiny towns in Mexico," Weis remembers.

Like Weis, a growing number of computer dealers started their careers elsewhere. They bring specific industry knowledge from former occupations to their new jobs. That makes them a good match for companies long on technical goals, but short on explanation time. Such dealers already understand fundamental business operations and the need to continually hone them to remain ahead of the competition.

As a result, some dealers provide advice as well as product. Those dealers well-versed in computer connection are in demand. While most ICs have long been involved with connecting PC users to mainframes, they are increasingly asked to link PCs to each other and other components that form an office automation backbone.

In some areas of the country, however, there is a growing reliance on in-house expertise rather than outside consultants. Sophisticated, experienced users in Boston, for example, which lies along Route 128, one of the country's major high-tech corridors, have already decided on their long-range plans. "They've picked their word processor, they've picked their spreadsheet, and they've probably decided on their network," says Warren Mills, a Boston MicroAge dealer. "In the past, they relied on us to answer questions for their end users. Now, they're experts themselves."

As a result, the role of some dealers like Mills has shifted from consultant to systems integrator. Companies like Mills' clients already have an idea about what they want, but still rely on dealers to put the equipment together and make it work. To keep their clients competitive, dealers stay on the cutting edge themselves. Many offer frequent technology training classes and seminars for their salespeople, who in turn pass on their knowledge to their clients.

Business-savvy dealers accommodate this new breed of corporate computer experts by providing them with ready access to the hottest technology around. MicroAge's Mertz recently remodeled her Dallas showroom to display state-of-the-art equipment to its best advantage. "Corporate clients don't come in to see a microcomputer do word processing," she explains. "They already know it does that." Instead, they come to see her display of Compaq DeskPro and Portable 386s, and experiment with them in a knowledgeable environment.

At Weis' Raleigh showroom, the Rohne-Polanc executive who stopped by in his golf clothes stayed to play with the Compaq Portable III. Weis was the only dealer who had it. That was the start of a mutually satisfying business relationship.

Certain events can trigger a return to dealers for advice. When an in-house expert leaves a company, or corporate takeovers occur, the company's technological progress may temporarily halt. In worst cases, it may revert. Companies that maintain an ongoing relationship with a dealer know they can rely on that source for up-to-the-minute information and emergency troubleshooting.

Though the needs of ICs and the businesses they represent undergo continual refinement, their relationship with reliable dealers steadily trends upward. Their stormy past behind them, both recognize the value of cooperation. "A good business relationship is based on mutual respect," concludes Mertz. "I'll jump through hoops for some of my clients. My services extend far beyond just delivering equipment." ▣

Jennifer E. Beaver is a freelance writer and communications consultant in Los Angeles.

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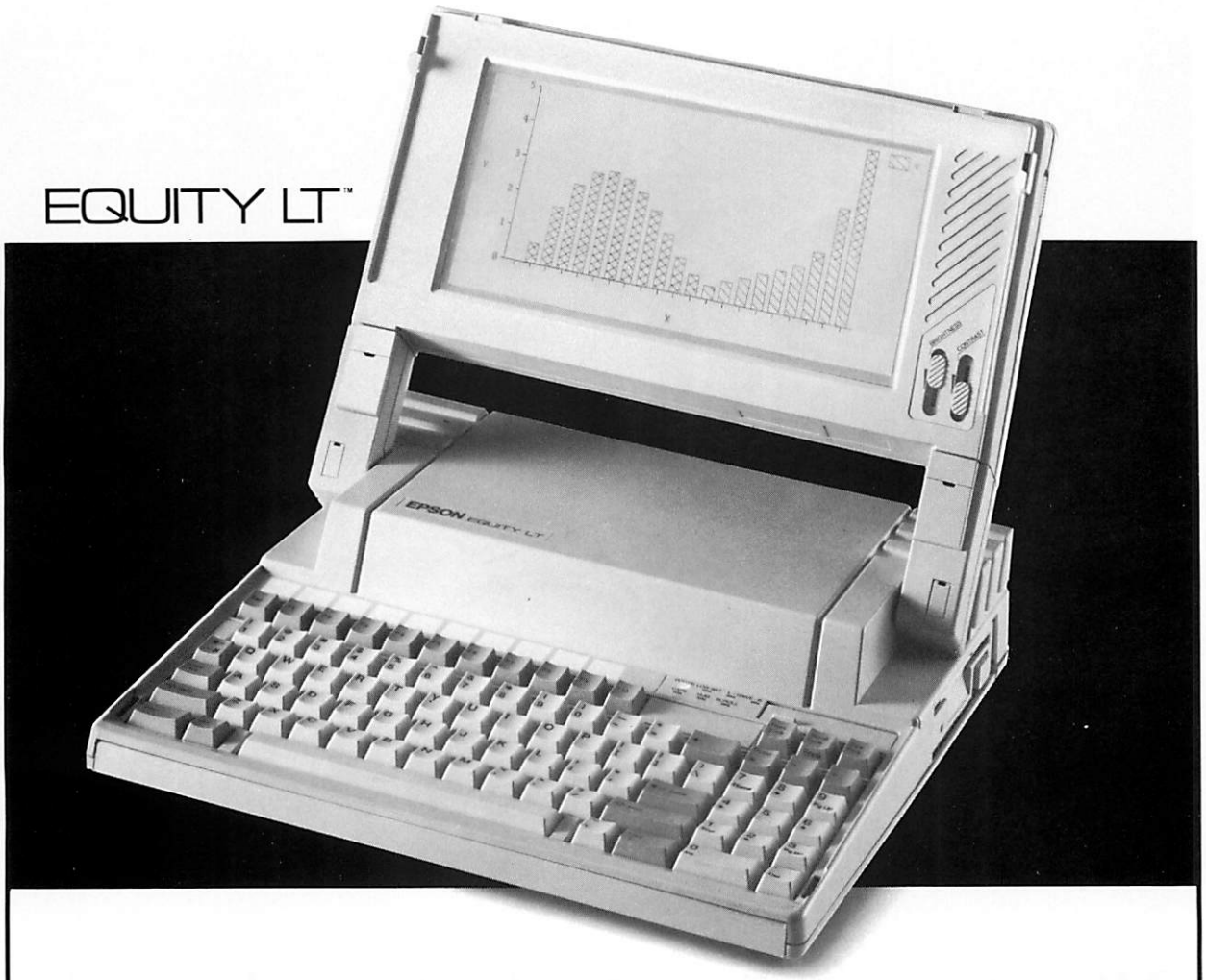

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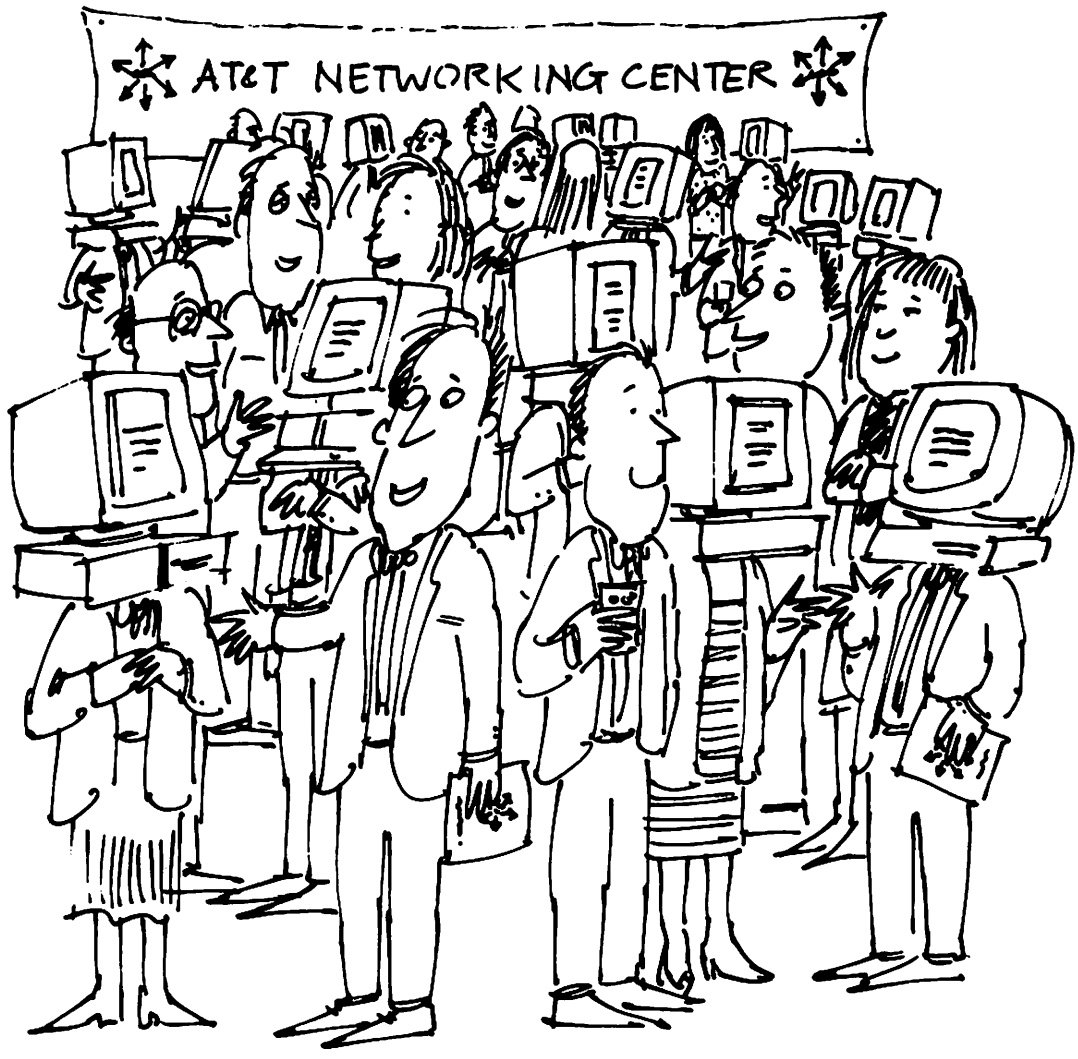

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OS/2

What OS/2 Means for You

By Claire Keaveney

Having juggled multiple applications, terminate-and-stay-resident programs such as Borland's Sidekick, printer spoolers and other solutions for doing more than one thing on a PC at one time, users are in the mood for multitasking, as well as access to the full power of their hardware investments.

After finding their productivity tools limited by the 640K memory limit of MS-DOS-based applications while being tantalized with the speed of the new generations of PCs and compatibles, users are finally being given the opportunity to harness the power of Intel's 80286 and 80386 chips with a new operating system. Operating System/2, developed by Microsoft Corp. and offered by IBM, Compaq, Hewlett-Packard, and other PC manufacturers, gives users access to a full 16 megabytes of memory and increases performance through multitasking applications on the desktop.

Multitasking means that a computer can do more than one thing at a time. Although it might seem like a person can handle only one application at a time, multitasking eliminates the need for a user to wait for a computer to finish printing a report or downloading electronic mail, for example, before starting to use another application. (For an in-depth look at the productivity gains of multitasking, see *Who Really Needs Multitasking: A Decision Maker's Guide* in this issue.)

To give this power an unintimidating interface, OS/2 will, in later revisions, include the Presentation Manager, which is similar in appearance and function to Microsoft Windows and Apple's Macintosh. The developers of OS/2 feel that such a graphical interface will greatly simplify the program, file, and memory management tasks associated with riding herd on large amounts of data, memory, and application software.

OS/2 Standard Edition 1.1, which began shipping from IBM last December, has since been joined by versions from Compaq, Hewlett-Packard, and other manufacturers. The extended version of OS/2, which includes the Presentation Manager, will not be available until the fourth quarter of this year. Until then, users can buy the standard edition for $325, and get Presentation Manager free when it becomes available. IBM, meanwhile, plans to offer an enhanced version of OS/2, called Extended Edition 1.0, this summer. To the standard edition, IBM is adding database, communications manager, connectivity and terminal emulation features. The price is a bit steeper: $795. Users can upgrade to Extended Edition 1.1, with the Presentation Manager, at no charge, in the fourth quarter.

Leaving aside for a moment the issue of whether to wait for Presentation Manager before taking the big plunge into a new operating system, how do you know if you really need capabilities beyond that of DOS? The answer seems to be like that given to Broadway hopefuls who ask a big star if they should go into show business. That is, "if you have to ask, it's probably not for you — yet."

"It really depends on what people need to do and how they do it," says Microsoft spokesman Marty Taucher. "Some people are just using Microsoft Word today, or perhaps Lotus 1-2-3. They're not doing very large spreadsheets or very large documents, so they're perfectly happy with DOS.

"They're perfectly satisfied with the kind of performance that they get on a 640K, MS-DOS-based system. Until they want to run a newer application that runs under OS/2, one that might be bigger than 640K, or they might want to sort more data than can fit in the data space that's available in the DOS world, or they want to run multiple large applications, they will not feel the need to move to OS/2."

In other words, many users will wait for applications developers — be they Microsoft or others — to show them what they can do with OS/2. If the existing application does the job, DOS is fine for now.

And how long will it take for applications developers to develop OS/2 applications? Although early applications are already shipping, the impact will be felt when new applications incorporate Presentation Manager. According to Joseph Seidler, senior analyst with Infonectics, Inc., in Santa Clara, Calif., applications developers will be getting their tool kits for Presentation Manager development this summer, and he expects to see OS/2 applications taking advantage of the Presentation Manager available shortly after OS/2 1.1 becomes available this fall. Whether these programs are new applications or adapted versions of familiar programs, their increased size and multitasking capabilites are aimed at winning users over to OS/2.

Some applications developers are introducing OS/2 programs even sooner, before the Extended Edition or Presentation Manager are available. "The Presentation Manager for some applications is sort of icing on the cake. It's the sizzle, not the steak," says Seidler. "I think some applications developers will want to begin selling their products and claim: Look, this is the steak, and I'll add the sizzle as soon as the Presentation Manager is available."

Seidler says there are some applications such as those in the large database, artificial intelligence, and computer-aided design/manufacturing arenas where for some time the developers have needed more memory space than MS-DOS's 640K limit to really make the applications fully functional.

Seidler thinks developers may be eager to port their programs over to OS/2 even before Presentation Manager is included. "Some developers have gone to the trouble of developing their own memory management systems or have used the extended memory that you can get from Intel [the Lotus/Intel/Microsoft (LIM) Extended Memory Specificiation]. I think those vendors want to be able to sell their applications this year; they don't want to wait. So I think we're going to see memory-intensive applications come out

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this year and then be enhanced next year [1989] to use Presentation Manager."

According to an Infonectics report, for example, Quantum InKNOWvations Corp. of Santa Clara created an expert systems development and delivery package on a PC. Since a great deal of development time was spent in memory management, the developers estimate OS/2's expanded memory — and its "protected mode," which prevent programs from crashing into each other — would have cut that time by 20 percent. The time would have been further reduced if they had been working with Presentation Manager, since they spent a lot of time developing their own windowing user interface.

Large spreadsheet users are likely to be among the first customers to benefit from an OS/2 version of their spreadsheet — with or without Presentation Manager — simply to have more memory. "I think those people are going to move very quickly to OS/2 because they'll be able to have, all of a sudden, essentially no constraint. That's a big benefit. I don't know what percentage of people have spreadsheets that are bumping up against the 640K limit. Maybe it's only five percent of all spreadsheet users, but all of those people are going to want OS/2 right away," said Seidler.

A typical such user would be one in a large corporation that has multiple divisions. Each division has its own spreadsheet for its own budget and a corporate user would like to have all the cells within one spreadsheet — with a separate component for each division — to work with the information in a consolidated format. Under DOS, such a user may soon find out that he has to chop his spreadsheet into sections and then manually put them all together. This constraint would be lifted under OS/2.

Some DOS programs can run under OS/2 in a DOS "compatibility box," but they cannot be multitasking — nor can they directly address more than 640K of memory. Lotus Development Corp., Ashton-Tate, and other major vendors have announced OS/2 products for release this summer. It remains to be seen, however, how many software vendors actually go to the trouble of releasing pre-Presentation Manager, OS/2 versions of their products.

Another natural application for OS/2 that has nothing to do with the Presentation Manager is transferring files between PCs. Transferring a very large file over telephone lines with a 1200-baud modem may tie up your PC for half an hour, according to Seidler. OS/2 lets you do your file transfer in the background while you get on with the rest of your work.

Microsoft's Taucher says the earliest adopters of OS/2 are likely to be large database users. Databases tend to be very large, he says, and users want to sort them in memory rather than on disk. "The database manufacturers are really the ones who are the quickest to take advantage of OS/2," Taucher says. "So I think you'll see a variety of very powerful databases out fairly quickly that run under OS/2 and that have significant performance advantages over their DOS counterparts.

"Some applications might come out that don't really require the Presentation Manager, which might be a compelling enough reason for people to switch to OS/2 now," Taucher says. For example, users might want to have a relational database such as Paradox running under OS/2 to do very fast database sorts in a large memory space.

After database software, a number of other applications will follow, according to Taucher, including word processing software and an OS/2 version of Microsoft's Excel spreadsheet product. "It will have a number of advantages over the DOS versions — in the way it uses memory, in the way it's able to multitask with other applications," Taucher says.

Once Presentation Manager becomes an integral feature of OS/2, the possibilities for Intel-based PC computing become even more exciting. "The advantage is really the inherent benefit of a graphical user interface," Taucher says. "Apple and Microsoft have long believed that a graphical user interface really gives people power applications that are much easier to learn because you have a much higher level of information you can present to users." Microsoft has found consistently over the years that people find applications based on a graphical interface much easier to learn, although they have not quantified it in terms of a percentage increase in productivity.

The great advantage will come when the major software developers have enhanced their products to take advantage of both OS/2 and Presentation Manager, which the majority of them are expected to do. "The Presentation Manager is going to bring a consistency to the user interface in the IBM world similar to the way the Macintosh interface made all Macintosh applications have a common user interface," says Seidler. "The benefit of a common user interface is manyfold." A user can be much more productive when the time he has spent learning one application can be directly applied to using one entirely new to him, because he does not have to relearn a multitude of tasks from saving a file to highlighting text for change or deletion.

However, giving PC applications a standard user interface may require a change of mind-set on the part of PC developers who have not already developed Macintosh versions of their products, Seidler says. "With the Presentation Manager in the IBM world, all the application developers are going to begin to be forced into a discipline of the user interface, just as Macintosh developers were." When the Macintosh first came out, Seidler added, many developers complained that Apple was hampering their creativity. But the user ultimately benefitted because the creativity the developers would have devoted to differentiating their products in terms of user interface was instead dedicated to increasing the functionality of their programs. "In fact, they're constrained only in how they show their package to the user. But that's a benefit to the user, and their real creativity ought to be put in to what their package is really about," Seidler says.

Most companies will probably want to take a good look at what OS/2 applications can do for them before deciding to change operating systems. "I think that right now it would be premature for most companies to carte blanche decide, I'm going to convert everything to OS/2," Seidler says. He suggests that a company choose some small segment of its users — including, prudently, its own MIS department — to begin using OS/2 in order to learn about it. The majority of OS/2 applications that users will want to run will probably come out after Presentation Manager, and Seidler projects that companies will begin changing operating systems for significant numbers of users in 1989. ▣

Claire Keaveney is a freelance writer in Santa Clara, Calif.

OS/2 Changes Training Needs

Will OS/2 and Presentation Manager for IBM and compatible PCs lessen the need for support and training for PC users in companies? Well, yes and no. Users will probably need less initial training and subsequent hand-holding on their day-to-day applications, but as microcomputer power grows, service and support become ever more complex issues, requiring growing sophistication on the part of support personnel.

"The amount of support necessary [to a user] to learn new applications is reduced because of a standard user interface," says Joseph Seidler, senior analyst with Infonetics, Inc., in Santa Clara, Calif. The larger the organization, the more bottom-line dollars the organization will save, he says. "Whoever does training and support in that organization is going to do less of it. That means you need less of those people. That means the employees who are beginning to learn on a PC with a standardized user interface will learn quicker, which means they will spend fewer hours learning and more hours doing. That's a direct, bottom-line contribution to profit."

Training time for PC users running OS/2 will reduce both at the operating system level and at the applications level, according to Taucher. The graphical interface of OS/2 itself is an improvement over the command-line structure of DOS. "We think there is a great advantage to having a graphical user interface because it does make things easier for end users to get up and running on the system. They don't have to learn how to work through a command line, how to work with a command processor, and how to interface with a machine-oriented interface to a computer." With OS/2, users are working with a series of menus and graphical representations, which has been shown to be a more intuitive approach to learning a computer. In other words, users instinctively know, or can quickly figure out, how to work with the operating system.

Therefore, the training time involved in learning how to get around the operating system will probably be shorter. And once users get into learning their applications, even more time will be saved. The application interfaces again will be graphically represented and intuitive. And once users have mastered the fine points, they can readily extend that learning to new applications as they increase the number of programs they use on their computers.

However, OS/2 offers two enhancements in addition to its graphical user interface: multitasking and increased memory size. And these new features will require the expertise of support personnel more than ever, as people start doing things with their personal computers that they could never do before. "Initially, there's going to be a training investment," Taucher says. "Anytime you get anything new, people have to learn how to work with it."

Sophisticated systems software requires sophisticated trainers, and multitasking is a new challenge for users and trainers. "We are working very hard to make it as simple as possible," Taucher says, adding that multitasking under OS/2 is actually simpler than under DOS. Under OS/2, multitasking will be designed in and designed to work with the system, but users still will require training on both new equipment and new applications.

OS/2 will open up whole new application areas for users to exploit, again requiring training and support to get them up and running. And users will always need maintenance and support.

Meanwhile, MIS departments are going to have to step up the level of support they give to their PC users because of enhanced connectivity between PCs and minicomputers, and mainframes, Seidler says. Infonetics' view of computing is that it is moving from a mainframe-oriented world, where the mainframe is the central processing unit and everything goes out from there, to a PC-centered world where mainframes and minicomputers are simply going to be very large depositories of information. Much of the processing will be done on the desktop on personal computers. Personal computers will be connected not only to one another and to local area networks, but also to minicomputers and mainframes as a matter of course. Companies — perhaps having different systems — will be connected to each other over telephone lines spanning the globe. "The amount of complexity and support that will be required is very high," Seidler says. "And so MIS departments are going to have to step up significantly their level of support to the PC arena because of the desire for connectivity. And that's a whole new world."

So although PC support personnel may have to spend less time helping users with applications once OS/2 and Presentation Manager become a standard, the ground broken in terms of memory and multitasking will open up whole new areas of personal computing in which innovative, sophisticated training and support will be vital. And the future of training and support becomes even more unlimited when personal computers are linked to vast minicomputer and mainframe systems and to worldwide information networks. ▣

— Claire Keaveney

WHEN DISASTER

Protection is available for the

When thieves broke into a film editing studio in New York City, they did something worse than just stealing expensive equipment: they destroyed custom software and data.

The company was forced to cancel jobs and lost about $50,000 in income from those projects. But that sizable loss was small compared to the price the company had to pay to replace their software and reproduce their data.

For many small companies, a break-in like this could threaten their survival. However, this company was spared from extinction because it had bought an insurance policy that covered the cost of reproducing its software.

Many companies are not even aware that software insurance is available. Although standard fire and theft insurance generally covers hardware, software usually requires a separate policy.

Yet, software is probably one of the last items you would think you have to buy insurance to protect. After all, the First Commandment of computers is BACK UP THY DATA. The prophets have told us that if you make copies of your software and keep them in another location, the worst that could happen is you would lose only the data you entered since the last backup.

But as any sinner knows, it is easy to disobey the Commandments. And when disaster strikes, that's when insurance provides the redemption.

A growing number of insurance companies are writing policies for all sizes of businesses that want to protect their data — as well as their hardware — against losses. These comprehensive electronic data processing (EDP) policies cover the cost of replacing the software and its databases if they were destroyed for virtually any reason.

Businesses are beginning to see the value in insuring their software.

"I feel it would be essential to have insurance to cover software," says Alex Kask, president of the Micro Managers Association and senior manager in computer audit for Ernst and Whinney, a Big Eight accounting firm. "It is extremely time consuming to reproduce data. If you have mailing lists or accounts receivable, it is outrageously expensive to reproduce this data. You might have a software program that costs $1,000, but it could cost $50,000 to reproduce the data."

Kask thinks companies should place more emphasis on insuring the software than they do on their hardware. "It is easy to replace hardware," he says. "Software is much more difficult."

Many different kinds of companies are buying insurance to cover their software, according to Barbara Kaplan, an account executive with Cohen Insurance in New York City. She has sold policies to large manufacturing companies, retailers, service industries and professionals.

"The more intricate a customer's data is, the more likely they need a comprehensive software policy," she says. "If a program is destroyed, it can cost a company a lot of money to reproduce it."

Like any insurance, EDP policies range in price depending on the limitations of the coverage. While it is difficult to say what the price of an "average" insurance policy is, Kaplan has written policies with premiums ranging from $500 to $100,000.

The premium is based on many factors. Some factors you can quickly count, such as the amount of hardware and software you own. The rate also depends on other factors you might not easily know, such as the fire rate of your office and whether you have a sprinkler system. Your own housekeeping procedures also can affect your rate: If you don't cover your computers or make regular backups, your policy premium could go higher — or the insurer might decide your company is not a good risk and will refuse to provide coverage.

To determine the limits of the coverage you require, you must put a price tag on your data. Although you might know how much you paid for your customized accounting system, it is more difficult to put a price on the data that is entered every day by an input operator.

"Businesses determine the value of the software and the data themselves," she says. "Generally, they take the cost of programming the software and build in the reproduction costs. We leave it to the client."

"Determining the values of data can be difficult," states a policy written by St. Paul Fire and Marine Insurance Company, of St. Paul, Minn. "We recommend you analyze your exposures and purchase enough insurance to fully protect against severe loss."

Kask suggests insurance buyers make sure the policy covers the cost of reproducing the data, not just pays for the price of blank disks and tapes.

Hardware can be covered for actual cash value, replacement cost, or upgrade value. EDP insurance policies, like all other insurance policies, do include a deductible amount that the insurers will not cover. Insurance com-

prepared

By Daniel Janal

panies appear to offer protection from almost any calamity, barring war and rioting.

Policies cover virtually every possible disaster such as:

— Mechanical breakdowns including head crashes, short circuits and electrical blowouts;

— Building errors such as a faulty electrical system or air conditioning malfunctions that destroy data;

— Human error such as accidental erasure of data;

— Other factors such as loss due to corrosion, rust or changes in humidity and temperature.

Generally, policies will not cover losses caused by any change in the electrical power supply such as a power surge or brownout.

Insurance companies will reimburse the company for virtually any cost associated with reproducing the software — from renting computers and office space to hiring temporary employees and paying overtime.

Additional coverage can be purchased to cover the costs of extraordinary items. For instance, if you need a weighty computer part flown in by overnight courier, the insurer will pick up those costs.

Insurance companies will pay for the actual cost of repairing or replacing media with material of similar kind and quality.

You also can recover the amount of business income you lost from being without the services of your computers and software.

"Business interruption insurance is very popular for companies that are dependent on data processing," says Kaplan. "When their computers are down, they cannot work. Insurance covers them for the loss of their income."

If you need to make a claim, you must prove your point. Insurance companies generally require the company's accountant to fill out worksheets that document the loss of income, the cost to repair and replace equipment and, if necessary, obtain new office space.

However, while insurers offer policies to cover many kinds of claims, they all look to protect their interests. Before writing a policy, insurers will carefully question applicants to make sure they are good risks.

If potential clients back up disks once every blue moon and don't cover the computer terminals with plastic covers that offer protection from water damage, they probably won't be offered a policy.

Insurers also can require that customers perform certain duties to qualify for a policy. "They have to take proper steps to minimize losses," Kaplan says. They must:

— back up data;

— store data in another location;

— wrap equipment with protective covers.

Some insurers will require that companies with large computer systems install a Halon system, which puts out fires without using water, because water can destroy data stored on disks and tapes, as well as computer hardware. However, some insurers will pay for the cost of refilling the Halon containers.

Whether you opt for insurance or not, your company can take even more precautions to prevent its data being lost forever, according to Al Lyons, vice president of operations for MAS, Inc., of Tempe, Ariz., a subsidiary of MicroAge. He suggests companies take these steps to ensure their data is recovered quickly and completely:

1. Devise a management strategy for dealing with data loss.
2. Make copies of your company's data every day and store them off site.
3. Give someone the responsibility to make sure Steps #1 and #2 are done (Lyons made this the task of the general manager and controller).
4. Make hard copy reports every week and store them in another location.
5. If your company is large, check out the services offered by a data storage company.

Lyons speaks from experience. He has had the experience of picking up the pieces and conducting business after a fire destroyed one of his company's locations. Backup tapes stored in a fireproof safe were destroyed when the roof caved in and crushed the safe. His staff spent 45 days working to replace the data.

Although the data was recovered, things would have gone more smoothly had they heeded the Backup Commandment. Protecting data is always the best insurance policy around. ▣

Daniel Janal is a computer consultant in Fort Lee, NJ.

Editor's Note: Although many insurance companies provide coverage for large data processing installations, and some also write policies for smaller systems, two companies that have specialized in personal computer insurance for at least five years are Safeware of Columbus, Ohio, (800-848-3469) and Data Security Insurance of Boulder, Colorado (800-822-0901).

WHO REALLY NEEDS MULTITASKING:

A Decision Maker's Guide

By Rick Cook

Multitasking is becoming an increasingly important technique for sophisticated computer users.

Simply stated, multitasking means doing several things at once on a computer. On a multitasking system, the user can work on a memo with a word processor, sort a database and log onto an electronic mail system to collect messages all at the same time.

Multitasking is a natural fit for the way most people, especially knowledge workers, actually do their jobs. All of us are constantly interrupted and have to shift back and forth between jobs repeatedly.

Multitasking can significantly increase productivity because it conforms more closely to our work habits. It also means the computer isn't tied up while performing time-consuming tasks like spreadsheet recalculations and database searches and sorts.

Although people have recognized the need for multitasking for almost as long as they have been using personal computers, it is only fairly recently that it has come within reach. Now it is not only possible to multitask on a personal computer, but also there are a whole range of ways to do it.

Picking the right method is one of the major keys to getting the greatest productivity gains from multitasking. Another one is deciding who can benefit the most from multitasking.

Not everyone who uses a computer needs to do more than one thing at a time. Some clerical workers such as data entry clerks and word processor operators won't see much benefit from multitasking. They use their computers as dedicated, single purpose machines and spend almost all their time doing one thing. For them, adding multitasking isn't cost-effective.

However, just because a worker spends most of his or her time doing a single job doesn't necessarily mean that multitasking won't make that worker more productive. It might be worthwhile to install multitasking so the worker can receive documents or messages electronically without interrupting the main job at hand, for instance. Generally these decisions have to be made on a case-by-case basis.

For workers whose jobs are not strictly routine, or who use the computer to do several things, the situation is more clear-cut. They can usually gain significant productivity with multitasking.

Broadly there are two main ways of getting the benefits of multitasking on a PC. One of them is to install a true multitasking operating system such as OS/2 or Xenix from IBM or Microsoft. The other is to use a kind of program called an operating environment, which acts as an add-on to MS-DOS and allows several programs to operate at the same

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time. Two popular environments are Desqview from Quarterdeck Office Systems or Windows from Microsoft. Both methods have advantages and drawbacks. To make multitasking successful, you have to consider both the costs and benefits.

The costs of multitasking are not insignificant and they tend to grow as the needs of the user increase. Although multitasking is done with relatively inexpensive software, switching to multitasking may require some new hardware, specifically memory upgrades, because of the greater demands it places on the computer.

Multitasking doesn't increase the power of a computer, it simply lets the user apply it more effectively. As more programs are run, the computer's resources are spread ever thinner and the time it takes to do a job can increase.

Although some multitasking systems such as Desqview will run on an IBM PC or Intel 8088-based PC-compatible, they will not run very well except under very light loads. An "AT-class" 80286-based machine is about the minimum for serious multitasking and a 386-based computer is even better.

Multitasking also takes more memory. Desqview will run in the 640K that is normally the maximum under MS-DOS, but the performance slows down dramatically beyond two simultaneous programs. OS/2 and Microsoft Windows require a minimum of 1.5 megabytes of RAM. Depending on the applications, a multitasking system may need four megabytes or more of memory.

This means installing additional memory boards. Desqview and other operating environments use expanded memory boards designed to the LIM (for Lotus, Intel and Microsoft) specification on 80286 systems, although there is no requirement on 386s. OS/2 does not need expanded memory since it can directly address up to 16 megabytes of memory.

An operating environment is the cheapest way to get started with multitasking. Operating environment software is typically less than $150, the hardware upgrade is potentially less expensive, and the user gets to continue using most of his or her existing software. Operating environments are immediately available and they have several years of development behind them.

Bruce Grant, director of technical support for MicroAge Computer Stores, Inc., uses an operating environment on his computer.

"I have been a partisan of these things for a long time, ever since the first versions of Desqview came out," Grant says. "I use Lotus fairly heavily and I use Desqview on my 386 machine. I can have two copies of Lotus up on the system and go back and forth between the spreadsheets. I also can cut and paste information. I'm not doing anything I couldn't do by shuffling files in and out of Lotus, but I can do it faster and easier."

Given the right hardware and applications, using programs like Desqview or Windows is smooth and nearly effortless. The user can switch the application on the screen at the touch of a key so time-consuming jobs continue to run in the background while his or her attention is on other work.

There are limits, however. One of the drawbacks to using an operating environment is that most, but not all MS-DOS software will work with one. In an effort to get better performance, many MS-DOS programmers have played tricks with their software and those tricks can make a program incompatible with Desqview or Windows. The most common examples are games, which bypass the operating system and write directly to the screen.

Even with such "poorly behaved" programs, all is not lost. Desqview and Windows can suspend their operation temporarily when they are not the main program, waiting to be invoked with a single keystroke when they are called back. However, this suspended animation approach misses out on the concurrent processing benefit that multitasking provides.

Another cure is to use a 386 machine and a version of the operating environment designed to work with it. Examples are Microsoft Windows 386 and Desqview with Quarterdeck's QEMM 386 Memory Manager. The 386 has a number of special features that make it easier to run multiple programs.

The other advantage of a 386 system with an operating environment is speed. Dividing the processor's time between several programs naturally slows things down. The 386 at 16 or even 20 megahertz (MHz, or millions of cycles per second) has the speed to make up for this. A conventional PC at 4.7 MHz is often too slow.

Although operating environments are an ingenious solution to the need to multitask MS-DOS programs, they are still somewhat limited. The ultimate solution would be to go to an operating system designed from the outset to do multitasking. That is what IBM and Microsoft are doing with OS/2, the new multitasking operating system.

OS/2 is a sophisticated operating system with true multitasking, the ability to directly address more than 640K of memory, a mouse-and-windows interface and a host of other powerful features. It can significantly increase the productivity of computer users. In fact, in some cases you don't even have to multitask to get significant benefits.

"There are some applications that are so memory bound that they get big performance increases just from having more memory available," says Grant. "An example would be Enable and the whole general category of integrated applications."

One important advantage of OS/2 is that, unlike almost all the "multitasking" alternatives available, it is a true multitasking operating system. This enormously speeds up some kinds of jobs.

The common definition of a multitasking operating system — and the one we have been using so far — is that it can run more than one program at a time. This is true, but it is also incomplete. An operating system that can run more than one program at a time is more properly a "multiprogramming" operating system. Programs like PC-MOS from The Software Link or MS-DOS with Desqview or Windows offer multiprogramming, not multitasking when used with unmodified DOS applications.

The confusion comes because most people in the microcomputer business don't distinguish between multitasking and multiprogramming. True multitasking operating systems can run parts of the same program simultaneously.

In many cases, multitasking parts of the same program can speed it up enormously. Say for example that you need to extract information from a database, sort it, and print the sorted information in a formatted report. The processor can start sorting data as soon as it is read off the disk, but in most cases the system will have to do additional disk operations to search through the entire database.

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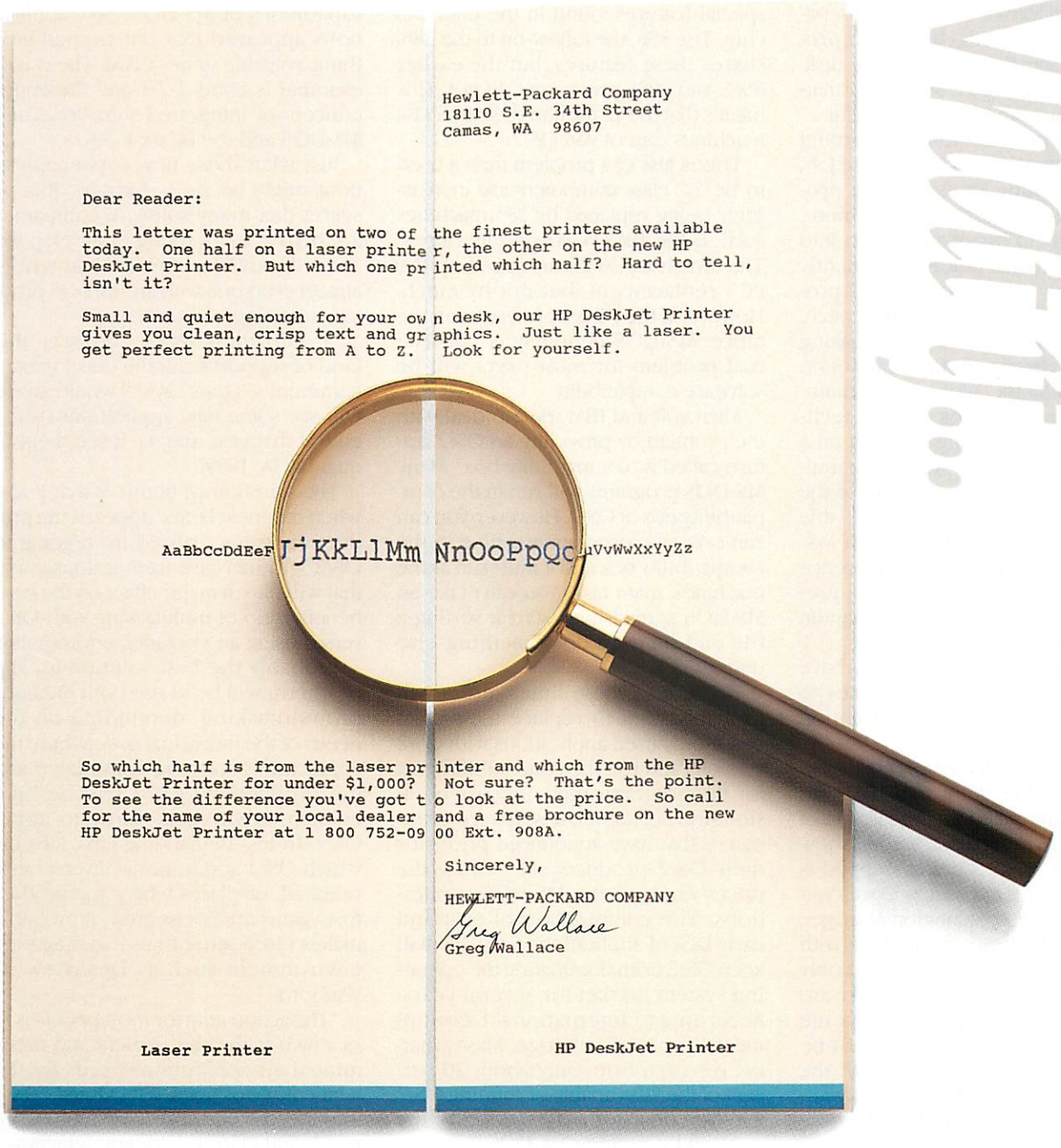
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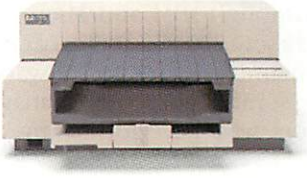

HEWLETT PACKARD

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In a single-tasking operating system like MS-DOS, the read/write time is dead time. The processor services the disk system, but even the fastest disk is slow compared to the processor so the processor spends a lot of time doing nothing.

In a multitasking operating system like OS/2 or Unix, that dead time is put to use. The system can access the disk, sort data and format the report as separate tasks, or threads. When the processor isn't actually managing the disk, it can be continuing the sort, or formatting or doing something else useful.

The result of all this can be a startling speed advantage. On a complicated job, true multitasking can speed up program execution by three times or more.

This ability to break a program into tasks and run each task independently is one of the main reasons OS/2 programs have to be written from scratch. A program written for a single-tasking operating system generally cannot be made to multitask. Writing true multitasking software takes special techniques. Not all programs that run on a multitasking operating system can multitask in this way. In fact, many of the first OS/2 applications will not be able to. They will be straight ports of MS-DOS programs and the only difference between them and their MS-DOS predecessors will be that they can handle more memory.

For all its advantages, OS/2 does have some drawbacks. The major ones to using OS/2 as a multitasking solution are availability and price.

So far, OS/2 only has been released in a partial version. Although IBM and Microsoft announced the availability of OS/2 at last November's Comdex show in Las Vegas, what is being shipped is incomplete. The current release, Version 1, lacks the Presentation Manager, the Macintosh-like user interface with windows and menus. It is intended only as an interim product to let software developers and managers become familiar with OS/2, and it will not be supported once the version with the Presentation Manager becomes available. The full version of OS/2 is scheduled to be shipped late this year or in early 1989.

Although IBM and Microsoft have sold about 200,000 copies of OS/2, most of them have gone to software developers, microcomputer managers and others who have to become familiar with the operating system.

The net result is that OS/2 is more of a long-term solution to multitasking needs than an immediate remedy. A user who needs multitasking today probably cannot get it from OS/2.

The cost of upgrading to OS/2 is significant, especially in an application now running on an IBM PC or equivalent machine. OS/2 is written around special features found in the Intel 286 chip. The 386, the follow-on to the 286, shares these features, but the earlier 8088 and 8086 processors do not. This means that the 12 million or so PC-class machines cannot run OS/2.

This is less of a problem than it used to be. PC class computers are increasingly being replaced by 286 machines such as the IBM PC-AT and its clones. The switch to OS/2 may speed up the PC's replacement, but not by much. However if the PC is obsolescent in the office, MS-DOS definitely is not. The real problem for most users will be software compatibility.

Microsoft and IBM tried to deal with the problem by providing an OS/2 feature called a "compatibility box." Many MS-DOS programs will run in the compatibility box of OS/2. However, you can run only one program at a time in the compatibility box and it must run as the machine's main task. You can't take an MS-DOS spreadsheet, start it sorting a file and then go do something else under OS/2.

Because of these limits, users will probably want to replace their most commonly used applications with OS/2 versions and use the compatibility box for the programs they only use occasionally. So far most software companies that have announced prices for their OS/2 products are setting the prices equal to the MS-DOS applications. The combination of cost and early lack of applications probably will keep OS/2 from dominating the operating system market for several years. According to International Development Corp., a Cambridge, Mass., market research firm, only about 20 percent of the PCs capable of running OS/2 will be doing so by 1990. Most of the rest will be running MS-DOS.

Ultimately however, OS/2 offers not just the ability to multitask applications like the ones in use today, it promises whole new families of applications that will do things we can hardly conceive of.

In this respect, the situation with OS/2 is analogous to what happened when the IBM PC was introduced. For the first 18 months or so, the PC did not do terribly well. There weren't many applications for the new operating system (MS-DOS) and those that were available generally were direct ports of applications written for the CP/M operating system. However, once software developers became familiar with the capabilities of MS-DOS, new applications appeared that outstripped anything available under CP/M. The classic example is Lotus 1-2-3 and the entire concept of integrated software. Then MS-DOS and the PC took off.

Just what these new super-applications might be, no one knows. It is no secret that many software companies are hard at work trying to develop the "next Lotus" for OS/2. Meanwhile, almost everyone with an MS-DOS product is porting it to OS/2.

"I don't think we've ever seen this kind of support from the development community," Grant says. "I would say we will see some new applications by the end of this year and we'll see them in quantity by 1989."

The significance of this is that if and when the "next Lotus" appears, the productivity gains realized from going to OS/2 will increase tremendously and that will have a major effect on the cost-benefit ratio of multitasking with OS/2 versus using an operating environment.

Probably the best solution for the near term will be to use both methods of multitasking, depending on the needs of the individual user. Where the applications software is available and the productivity gains will be high enough, it will make sense to install OS/2. In less demanding jobs, jobs for which OS/2 applications haven't been released, or places where the productivity gains are not as great, it probably makes more sense to use an operating environment such as Desqview or Windows.

"The action item for most people is to sit down with their dealers and determine their applications needs for the next couple of years," says Grant. "Then they need to look at their immediate needs and plan accordingly. Whichever strategy is chosen, multitasking offers real productivity gains and paybacks." ■

Rick Cook is a freelance writer in Phoenix, Arizona.

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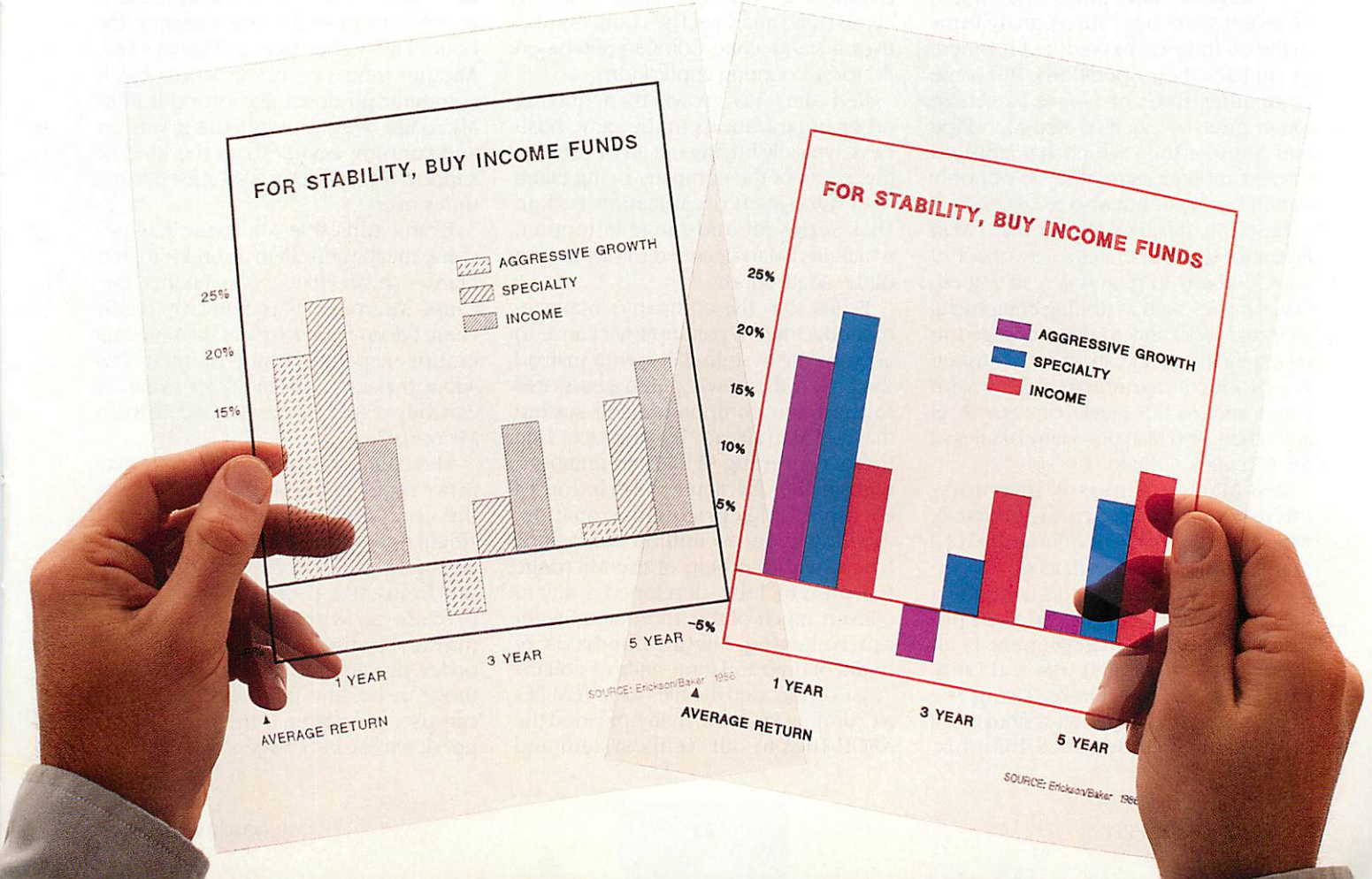
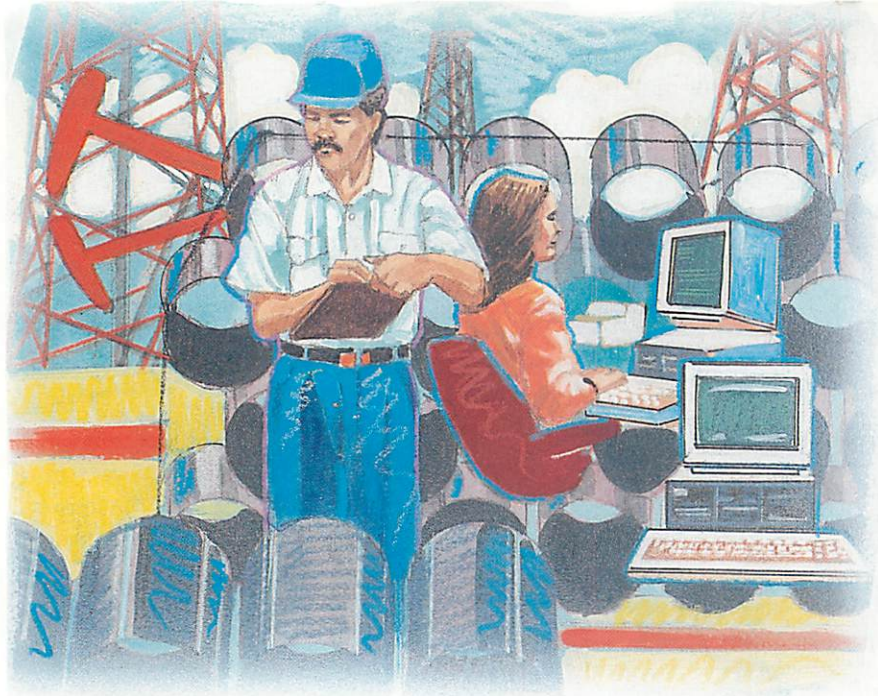
Guess which presentation made the sale.





MicroAge Makes for Smooth Data Flow at Red Man Pipe and Supply

Anyone in Oklahoma, Texas, and other oil-producing states can tell you that the oil business has seen better times. The oil glut of recent years has caused many firms in the oil industry to go out of business or cut back their operations. But some companies have prospered even in tough times — such as Red Man Pipe and Supply, Inc., which has applied microcomputer technology to not only stay in business, but also to expand.

Based in Tulsa, Oklahoma, Red Man Pipe and Supply operates a network of 19 sales locations in nine states, selling oilfield supplies such as drilling equipment, pipe and lubricants to firms engaged in oil exploration and extraction. Distributing products manufactured by companies such as U.S. Steel, Lone Star Steel and others, Red Man posts annual sales in the $70 million range.

Red Man's business is inventory-intensive and transaction-intensive, which is why it makes extensive use of a microcomputer system in its store operation, says Rick Evans, the company's data processing manager. Red Man's primary information management is an integrated system of 20 IBM and Compaq personal computers. Using the Xenix multiuser operating system and a distributed database called Informix, management uses the computers to accomplish various functions, including inventory management, invoicing, purchasing, sales reporting and purchase trend analysis. The company also uses a stand-alone Compaq 386-based PC for accounting applications.

Red Man has grown by acquiring other organizations in the same business, typically buying out all or some of the assets of the company being taken over. One such organization had an IBM Series/38 mid-range computer, which Red Man declined to buy as part of the acquisition.

Evans says the company's management decided to pass up the chance to acquire the System/38, opting instead to convert the newly purchased stores to the microcomputer-based system that Red Man already had in place. That meant converting 35,000 part numbers, with an 80-character description of each part, plus pricing information, totalling about 25 million characters. Evans, with the help of the MicroAge franchise in Tulsa, developed a way to convert much of the information without re-keying, saving hundreds of hours of time and thousands of dollars. "We downloaded the files to an IBM PC-AT running PC-DOS, then uploaded the ASCII files to our Xenix system and restructured them as needed using Informix," says Evans. "Within 10 days, we were up and open for business."

Despite his hardware and software knowledge, Evans claims he is not a technician. "My expertise is business problem solving. I'm a one-person data-processing department, which is small for a company this size," says Evans. "We can operate our information management function cost-effectively by working with MicroAge. They've done everything that they told me they could do."

MicroAge has been able to come through when needed, says Evans. "While negotiating our acquisitions, MicroAge has provided appropriate counsel while maintaining confidentiality. That's why when we have expanded, I haven't gone out to get competitive bids for new data-processing equipment, because MicroAge has proved their professionalism and reliability."

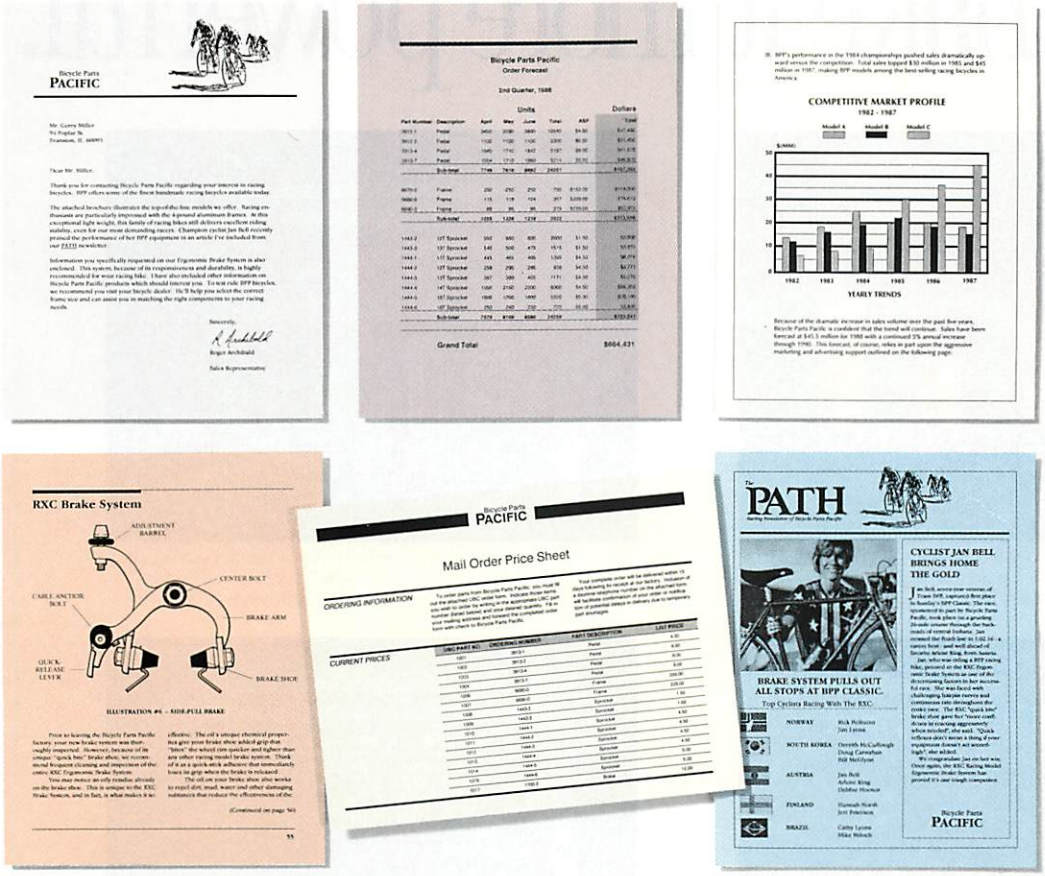
MicroAge technical support also has proved to be a significant part of Red Man's information management system. "One time one of our stores needed to print out an important report, but didn't have the proper printer driver installed on their system," recalls Evans. "MicroAge transmitted the necessary document via modem, which made it possible to print the report just a few hours late, rather than a few days late. Another time, one of our stores had a computer go down and carted it in to MicroAge. Within two hours it was up and running again. That's the kind of support that quickly pays for itself many times over."

Evans adds that MicroAge has become much more than a vendor to Red Man — more like a consultant. "Because MicroAge is technically proficient, I don't need to maintain a systems engineer, programmer or technical support person on staff," says Evans. "I can buy expertise as I need it from MicroAge."

MicroAge's technical proficiency may prove useful in the future to Red Man as the company continues to expand. "Right now we're one data-entry screen away from taking orders electronically," says Evans. "Bar-coding technology may provide us with significant opportunities in the future to streamline order processing and cut costs." And those are benefits that many companies can use, no matter if their industry is up, down, or in between. ▣

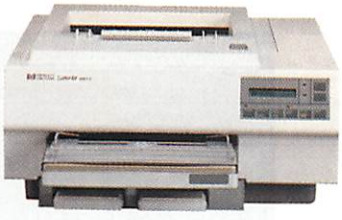
we never stop asking "What if...

How to look good from start...



to finish.

The HP LaserJet Series II Printer.



Nothing brings your ideas to life like the HP LaserJet Series II Printer—from office memos to forms to newsletters. As the leading laser printer, it works with all popular PCs and PC software packages. And, with a wide range of fonts, you get more options to create superior looking documents.

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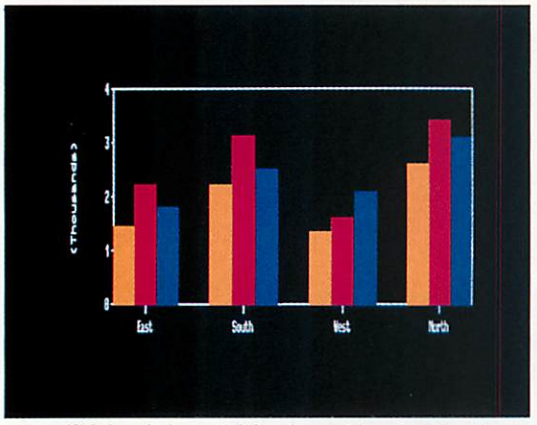
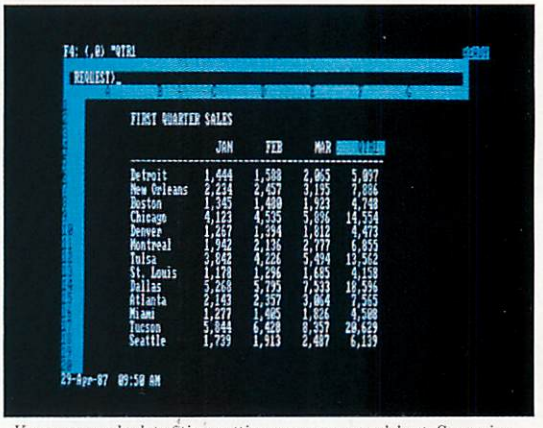
Print samples were created using Microsoft Word, Microsoft Excel, and Aldus PageMaker.

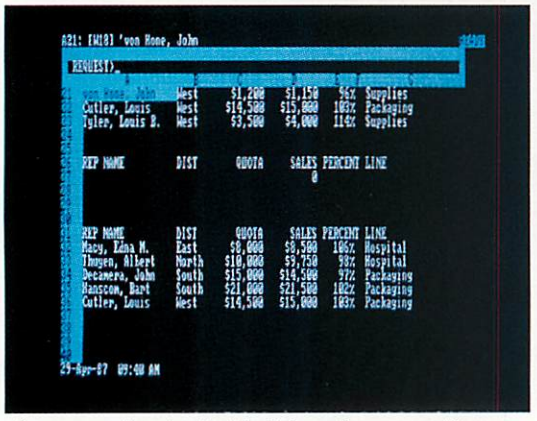
To get Lotus 1-2-3 to do all this more quickly and easily, we didn't make it more powerful.



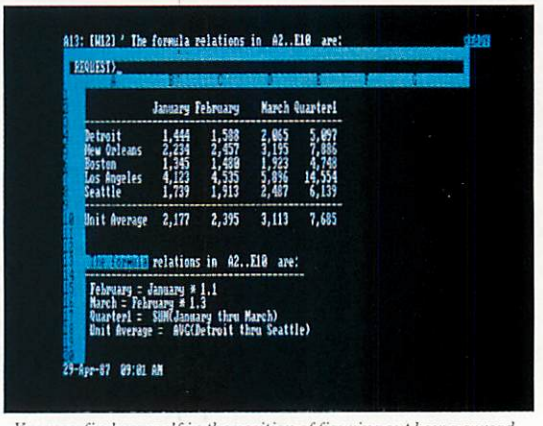
Lotus HAL doesn't change 1-2-3 or the worksheet. It makes things easier. For instance, to graph sales by district from January to March just request **"graph Jan to Mar."**



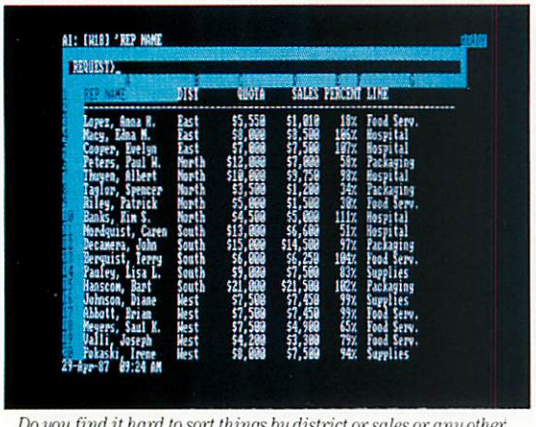
You can spend a lot of time setting up your spreadsheet. Summing up sales figures is a good example. With Lotus HAL, just request **"total all rows"** *and 1-2-3 and Lotus HAL will create the formulas.*


A21: [W18] 'von Hone, John
REQUEST)
von Hone, John West $1,200 $1,150 96% Supplies
Cutler, Louis West $14,500 $15,000 103% Packaging
Tyler, Louis B. West $3,500 $4,000 114% Supplies
REP NAME DIST QUOTA SALES PERCENT LINE
0
REP NAME DIST QUOTA SALES PERCENT LINE
Macy, Edna M. East $8,000 $8,500 106% Hospital
Thygen, Albert North $10,000 $9,750 98% Hospital
Decamera, John South $15,000 $14,500 97% Packaging
Hanscom, Bart South $21,000 $21,500 102% Packaging
Cutler, Louis West $14,500 $15,000 103% Packaging
29-Apr-87 09:40 AM

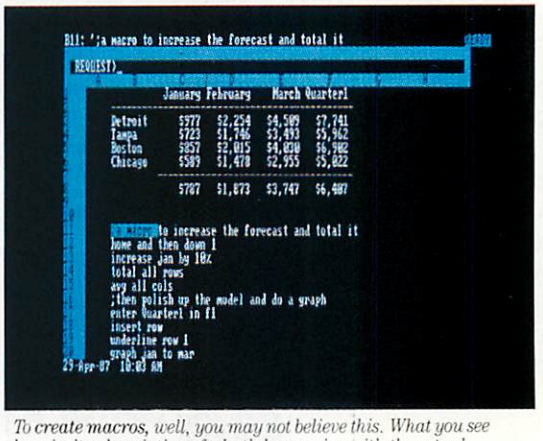
Say you want to extract just the information you want from a database. For example, you want to determine your top sales reps. Simply request **"who has sales ≥ 8000."**


A13: [W12] ' The formula relations in A2..E10 are:
REQUEST)
January February March Quarter1
Detroit 1,444 1,588 2,065 5,097
New Orleans 2,234 2,457 3,195 7,886
Boston 1,345 1,480 1,923 4,748
Los Angeles 4,123 4,535 5,896 14,554
Seattle 1,739 1,913 2,487 6,139
Unit Average 2,177 2,395 3,113 7,685
relations in A2..E10 are:
February = January * 1.1
March = February * 1.3
Quarter1 = SUM(January thru March)
Unit Average = AVG(Detroit thru Seattle)
29-Apr-87 09:01 AM

You may find yourself in the position of figuring out how a spreadsheet was built. Well, with Lotus HAL, you simply request **"list the relations in the sheet."** *And away you go.*

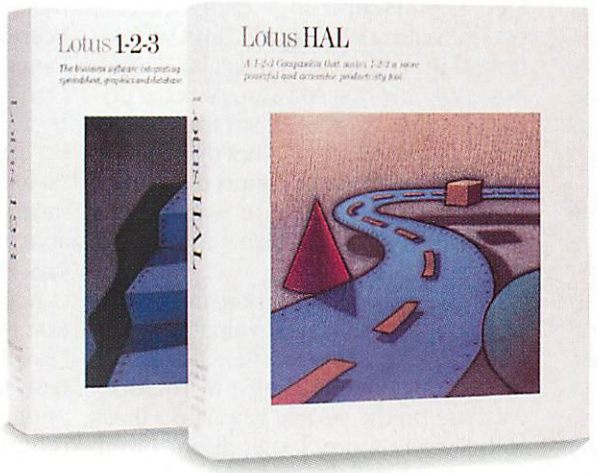

A1: [W18] 'REP NAME
REQUEST)
REP NAME DIST QUOTA SALES PERCENT LINE
Lopez, Anna R. East $5,550 $1,010 18% Food Serv.
Macy, Edna M. East $8,000 $8,500 106% Hospital
Cooper, Evelyn East $7,000 $7,500 107% Hospital
Peters, Paul M. North $12,000 $7,000 58% Packaging
Thygen, Albert North $10,000 $9,750 98% Hospital
Taylor, Spencer North $3,500 $1,200 34% Packaging
Riley, Patrick North $5,000 $1,500 30% Food Serv.
Banks, Kim S. North $4,500 $5,000 111% Hospital
Nordquist, Caren South $13,000 $6,600 51% Hospital
Decamera, John South $15,000 $14,500 97% Packaging
Berquist, Terry South $6,000 $6,250 104% Food Serv.
Pauley, Lisa L. South $9,000 $7,500 83% Supplies
Hanscom, Bart South $21,000 $21,500 102% Packaging
Johnson, Diane West $7,500 $7,450 99% Supplies
Abbott, Brian West $7,500 $7,450 99% Food Serv.
Meyers, Saul K. West $7,500 $4,900 65% Food Serv.
Valli, Joseph West $4,200 $3,300 79% Food Serv.
Pokaski, Irene West $8,000 $7,500 94% Supplies
29-Apr-87 09:24 AM

Do you find it hard to sort things by district or sales or any other criteria? Just request **"sort by dist."**


B11: ';a macro to increase the forecast and total it
REQUEST)
January February March Quarter1
Detroit $577 $2,254 $4,509 $7,341
Tampa $723 $1,746 $3,493 $5,962
Boston $857 $2,015 $4,030 $6,902
Chicago $587 $1,470 $2,955 $5,022
5787 $1,873 $3,747 $6,407
to increase the forecast and total it
home and then down 1
increase jan by 10%
total all rows
avg all cols
;then polish up the model and do a graph
enter quarter1 in f1
insert row
underline row 1
graph jan to mar
29-Apr-87 10:03 AM

To **create macros,** *well, you may not believe this. What you see here isn't a description of what's happening—it's the actual macro. See, we told you you wouldn't believe this.*

We made you more powerful.



How? With Lotus HAL™—a Companion product for 1-2-3® that helps you take shortcuts, undo mistakes, link spreadsheets, use your own words for commands and basically get more out of 1-2-3 than ever.

So much more, that Computerworld has named Lotus HAL "Product of the Year."

The screens on the left will give you an idea of how easy it is to get more out of 1-2-3. And these are only a few of the enhancements and new features Lotus HAL brings to 1-2-3.

Lotus HAL gives you the ability to perform 1-2-3 tasks using simple English phrases—called, logically enough, "requests." This has advantages for all kinds of 1-2-3 users: the newer users will find that difficult tasks are now simplified; the more experienced users will find that many time-consuming tasks can now be performed in a fraction of the time.

In addition to this powerful capability, Lotus HAL also allows you to test assumptions, correct mistakes and simply change your mind with ease. Because through a special capability called "undo," Lotus HAL lets you reverse your last command—even retrieving a file before saving your work.

Besides all this, Lotus HAL gives 1-2-3 a number of other useful and powerful new features—like spreadsheet auditing and the ability to link cells or ranges between worksheets.

One obvious benefit of all this is that you save time. This is what led Business Software to say, "...(Lotus) HAL gives users the ability to move through 1-2-3 at least twice as fast."

And what does that savings in time mean to a business person? It means you're more powerful, more productive, more effective than ever before.

Make yourself more powerful, and buy yourself Lotus HAL. You'll find it at your Authorized MicroAge Dealer. See? Everything with Lotus HAL begins with a simple request.

Lotus HAL

Requirements: Lotus HAL is a memory-resident program that requires 1-2-3 Release 1A, Release 2, or Release 2.01 for personal computers from IBM,** COMPAQ and AT&T, plus 1-2-3 certified compatibles; two disk drives; DOS 2.0 to 3.1; 512K RAM. Please refer to your 1-2-3 package or 1-2-3 documentation for appropriate hardware configurations and DOS requirements or consult your dealer. **Lotus HAL does not operate with 1-2-3 for IBM PCjr., or IBM PC Convertible or Release 1A for the IBM 3270 PC. © 1987 Lotus Development Corporation. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. Lotus HAL is a trademark of Lotus Development Corporation.
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The Computerized Salesperson...

A New Breed of "People Manager"

Isn't it ironic that sales, one of the most independent and aggressively competitive occupations, squeezed by competition, quota, commission, bonus and incentive pressures has, for all practical purposes, not yet taken advantage of the computer?

With millions of people operating inexpensive personal computers running tens of millions of very affordable software applications — from accounting spreadsheets and desktop newsletter publishing to controlling one's personal investments — only 15 percent of all salespeople personally use these productivity-enhancing tools on a daily basis to help them make more money.

Not so with Martin Mansfield. Articulate and handsome in his late 30s, Mansfield favors tailor-made suits, good food and fast cars. He is also a very successful salesman...a "salesperson's salesperson" who likes to make money. And he's totally computerized.

"I prefer to call myself organized," says Mansfield, a real estate broker with Vancouver, B.C.-based Park Georgia Realty Ltd., who specializes in selling the more expensive properties in prestigious West Vancouver. A former real estate agent in Los Angeles and owner of a 30-agent Seattle brokerage firm, Mansfield is not inhibited by PCs as many salespeople seem to be. On the contrary, he works hard but uses the right software to work efficiently and keep ahead of competition and in total control of his life.

"Until a few months ago, the only way software could have supported my requirements would have been for me to spend about six months customizing a general-purpose, non-sales-specific database package," says Mansfield. For the past four months, he's been using The Maximizer, recently-released sales support software from Vancouver, B.C.-based Pinetree Software, which, "incredibly, meets 90 percent of my needs," he says.

For many years, Pinetree Software has been supplying mainframe, mini and microcomputer software and services to the real estate industry. The company broadened its focus and created The Maximizer — using the fast programming language "C" and sophisticated Btrieve relational database technology — the first software package designed for ease of use from the ground up to meet the specific needs of salespeople. Pinetree now counts more than 1,000 users of its software — salespeople in all types of organizations and markets.

All salespeople everywhere must manage people, their most valuable commodity. Yet almost everyone, salespeople included, manages their information database on the people who affect their daily lives in a very loose, disorganized way, says Mansfield. "Valuable information is scattered among pieces of paper, notebooks, personal telephone directories, Rolodexes, appointment books, desk calendars, briefcases or buried in files in the office or at home."

Salespeople, especially those who travel frequently, waste an incredible amount of time just looking for information, transposing and recreating it from one piece of paper to another. In general, salespeople also are notoriously poor record keepers, preferring to be out in front of customers and selling.

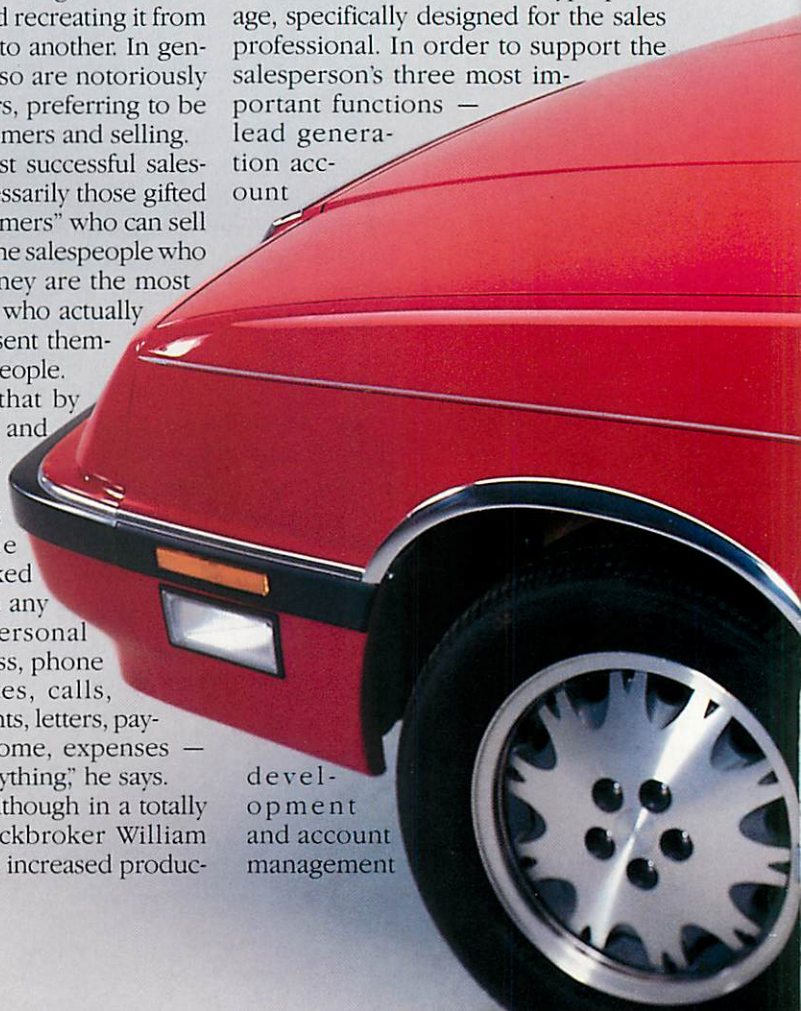
However, the most successful salespeople are not necessarily those gifted "silver-tongued charmers" who can sell sand in the desert. The salespeople who make the most money are the most organized — those who actually do contact and present themselves to the most people.

Mansfield does that by keeping everybody and everything in his sales support database. "This includes *everybody* in the world I've ever talked to or contacted, on any professional or personal matter: their address, phone numbers, my notes, calls, memos, appointments, letters, payment analyses, income, expenses — everybody and everything," he says.

In like fashion, although in a totally different field, stockbroker William Hodal is "driven" to increased productivity by his sales support software. A licensed registered representative with Vancouver-based Canarim Investment Corporation Ltd., Hodal thought that, by computerizing his operation, he'd be able to leave his briefcase behind. "What I found out is that I carry twice as much today as before because I'm now able to go after 10 times more business," says Hodal.

According to Hodal, the sales function has very similar needs in all fields. "Sales types need quick, fingertip access to notes on conversations, telephone numbers and constant, updated reminders as to when to contact particular clients," he says. "They also need their information cross-referenced so they can have any data they want by self-assigned descriptions.

To present themselves to more people, manage these people and, therefore, be successful by increasing sales, a salesperson needs a powerful but easy-to-use relation al database-type package, specifically designed for the sales professional. In order to support the salesperson's three most important functions — lead generation account development and account management



— a good sales support software package must be able to:

— Alphabetically hold an unlimited number of client and personal information, notes and memos;

— Provide an unlimited number of ways for the salesperson to describe or qualify these people, from income/budget and purchase interest level to occupation and personal preferences;

— Provide an easy way to instantly get any information, merge it with other data or slice it across any self-described variable or attribute;

— Set up and remind salespeople of appointments and tasks to be done, and easily send out personalized letters;

— Record next client contact date and multiple recurring dates;

— Provide unlimited date/time-stamped note and memo files;

— And above all, be easy to use. Studies have shown that complex software not only has been shelved by salespeople, but also has turned them off computers.

Salespeople shouldn't have to waste productive time learning to be more prouctive. And they shouldn't have to beome programmers, wasting time and money changing their ways to adapt to the technology and, in the process, confusing activities with accomplishments.

The software must be able to help salespeople with one of their big problems: qualifying clients and turning general "possibles" into likely "probables" ...those people most likely to buy and on whom time and effort should be focused.

The sales support software's relational database links client and personal information together — names, addresses, background information, memos, personal notes, all the little things that transpired in a conversation — which, together, help qualify the prospect.

Salespeople shouldn't be confused by having literally everyone they know together in one database. This actually provides the best method of managing people. Each person can be associated with various attributes such as occupation, purchase authority, categories of purchase, interest level, etc. By easily cross-referencing this information in The Maximizer's "utilities" section, a salesperson can easily "pull up" out of the all-encompassing database anyone who matches those attributes, or can group them by more general categories such as area codes, zip codes, city, province or state.

"For example, one of The Maximizer's most powerful features is its ability to retain a virtually unlimited amount of information on clients," says stockbroker Hodal, "an amount of information that's restricted only by the disk storage capacity that I have. And, instead of being limited to the existing description tables, salespeople can quickly and easily customize descriptions to their needs to include such criteria as specific products or industry terminology," says Hodal.

Another enormous advantage of having one centralized client database is that it lets salespeople accomplish something they seldom do but which will generate their future income: manage old business. Real estate salespeople, for example, in their perennial drive for new business, forget that those very people to whom they sold a house will even-

tually sell and buy another.

With a computer and sales support software, not only do salespeople have access to data in any way they want to sort it, but also they now have an easy way to merge that into prewritten letters already formatted by the software. And salespeople who wouldn't be able to type a letter if their lives depended on it now have the freedom to send out hundreds of letters, with a few keystrokes, without having to beg a secretary, if there is one, to do it for them.

Realtor Mansfield's sales support database contains information on thousands of former customers and people in general who haven't bought or sold real estate in years. "From my PC-AT and printer, using an old life insurance technique formerly done by hand, I send them letters six times a year, at Christmas, on their birthdays, wedding anniversaries and so on, by simply pressing a few keys and without ever contacting them personally. Letters may sound corny and subliminal, but I'm sure that my birthday greeting may be the only one that some people will get."

Knocking on doors is not Mansfield's idea of seeking new business. He will "farm" an area through letters followed up by phone calls, all done at his PC with sales support software ready to capture new information. "Everyone is either in my database or will be immediately after the call," Mansfield says.

Real estate salespeople will find to their joy that another bonus of using a PC is their ability to access a mainframe computer's multiple listing service (MLS) of all properties in North America from their own computer.

Salespeople attend countless self-improvement seminars on how to manage people and time. Seminar leaders make a good living; attendees are stimulated and, two to three weeks later, are back to old habits. But you can't ignore your sales support software. You paid for it and the "training instructor" hasn't gone away, but is still there in your PC.

If nothing else, the novelty will draw a salesperson to use the software. The salesperson will find that screens are easy to follow by using simple English commands with menus, many levels of "help" and overlay windows to guide them at every step.

"The Maximizer is as easy to operate as a videogame and my 13-year-old boy uses it to send letters," says Hodal. "By simply pressing the ENTER key after choosing an option in a window, one moves 'forward' or 'deeper' into that section's particular details. And, by pressing the ESCAPE key, one exits from one window to another moving 'backward' or 'higher' to more general information on a given subject."

More important, salespeople will have gained confidence from their power to better manage both themselves and their clients. And the software's capabilities will have increased their competitiveness.

"They become more responsive to their market," says Hodal. "For example, instead of saying the usual, 'I'll get back with you,' when a client asks for payment calculations and schedules or financing, salespeople can generate a quote from a laptop on the spot by using the software's payment analysis feature, and then store it in the software's client log for future reference."

"The sales support software is fantastic in printing out phone numbers alphabetically by people's names," says Mansfield. "I always have the phone numbers when I need them."

Mansfield takes quick notes on a pad when driving his BMW and making calls on his cellular car phone, information that he enters into his PC immediately upon returning to the office. The software automatically creates telephone directories from client records. "By entering one or more characters of a person's name or company, I can bring up one or an entire group of clients simultaneously on the screen," says Mansfield.

"I don't use a laptop computer because I prefer the power of my desktop AT," says Mansfield, who likes all his computerized power — all files, printer, modem, fax capabilities, sales support, spreadsheet, graphics and other application software — in one central location.

Friends of his do use laptop or desktop computers or, sometimes, both. "Laptops are ideal for salespeople on the road much of the time, when waiting for a meeting or when spending hours in an airplane," says Mansfield. To his sales friends on the road, the sales support software is their office, complete with secretary, giving them the opportunity to organize notes, write letters or review key points and refine a presentation.

Personal computers are soon destined to give the sales function a shot in the arm, especially in the laptop segment for which industry sales projections are quite sanguine. Out of 350,000 laptops sold in 1987, 38 percent or 133,000 were targeted at the sales function. By 1991, total laptop sales are estimated to reach 2,100,000 units of which about 950,000 will go to the sales force, reflecting a 50 percent growth.

"After only a few days of use, salespeople become so confidently attached to their computer and software that some of them go into a frenzy of throwing paper away!" says Mansfield.

Except for letter writing, paper can be nearly eliminated since appointments are scheduled and calendars are kept electronically. A "hot list" lists all scheduled appointments, clients to be contacted with recurring dates, if any. "To do" items not crossed out such as people to call will be moved up in time. A salesperson can make appointments and schedule activities in a perpetual calendar mode.

Daily "hot sheets" remind the salesperson of appointments to be automatically recorded in the client log. And there's even a diary for personal notes and user-defined accounts for recording personal income and expenses.

"Every morning, I print out my hot list of the people I haven't called yet and who haven't been crossed out on my Maximizer calendar," says stockbroker Hodal, who owns five IBM PS/2 computers at home and in the office and carries his always-current Maximizer 3½-inch diskette wherever he goes.

"Using a good sales support software will drive the way you do business," says Hodal. "It's a good way to help you take charge and be in control of your life."

Mansfield agrees wholeheartedly. "It's almost a self-perpetuating syndrome that, resembling a snowball rolling down the mountainside, the most successful people make the most money purely by being the most successful people.

"Historically, people who computerize aren't the lazy ones. They are successful people who've made money and want to make more. Sales support software such as The Maximizer will do just that for the professional salesperson.

"All things being equal, what salesperson would you want to deal with — someone who has a computer and uses it or someone who doesn't?" asks Mansfield. ▣

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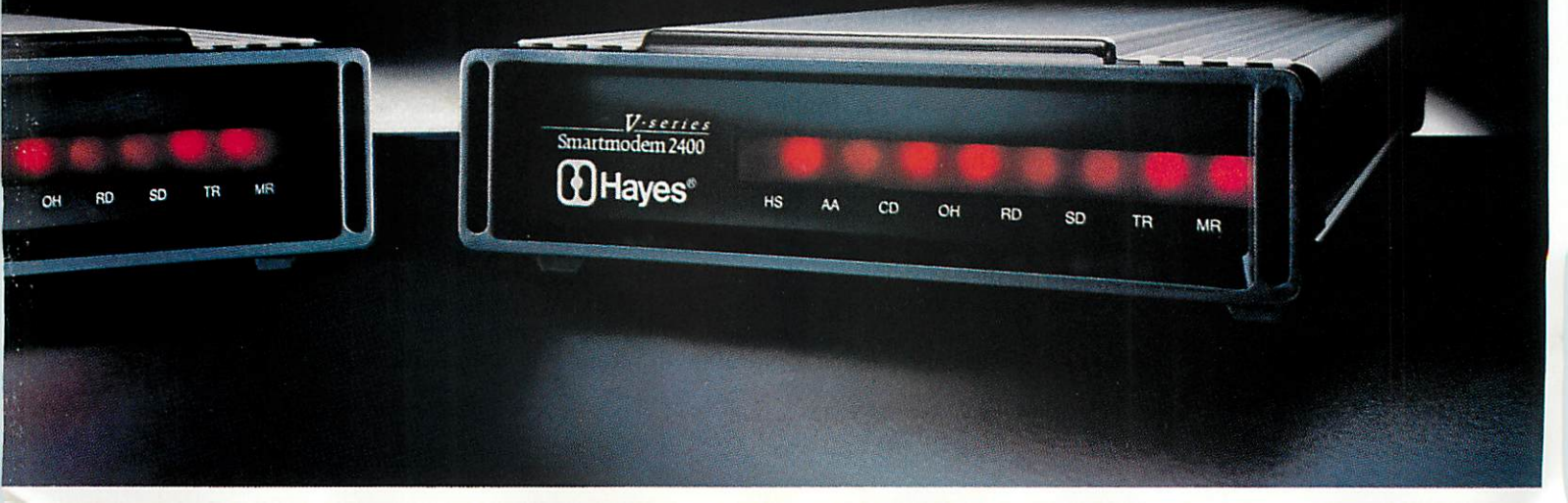


HOW DO YOU SPELL P-R-O-D-U-C-T-I-V-I-T-Y?

By Rick Cook

Increased productivity is the most commonly given reason for purchasing a small computer. But do microcomputers really increase productivity?

The obvious answer is yes. Most regular computer users will agree that computers do make white collar workers of all sorts more productive. But like a lot of obvious propositions, this one can be very hard to prove.

In fact, it can be so hard to prove that some management experts claim microcomputers do not increase productivity at all. They point out that in spite of the enormous amounts spent on small computer systems over the last decade, managerial productivity in the United States has actually declined by the standard measures. It is estimated that information workers were 2.6 percent less productive in 1986 than they were in the 1970s.

"According to numerous graphs, charts and studies by mainstream economists, while computer spending has increased every year since 1982, white collar productivity has remained stagnant," Jim Manzi, chairman and CEO of Lotus Development Corp., told attendees in his keynote address at last November's Comdex. "It's become fashionable among management consultants to tell their corporate clients that high tech is not paying its own way."

"In 1976, at the dawn of the personal computer age, corporations invested $100 million in PC technology," Steve Crummey, senior vice president of worldwide sales and service for Lotus told a group of computer industry executives recently. "Ten years later, in 1986, they spent $46 billion on PCs — and nobody really knows what those dollars are buying."

This isn't an academic debate. More and more companies are insisting on a detailed cost justification before purchasing more computers or office automation equipment. And fewer and fewer of them are willing to accept the unsubstantiated claims that the new equipment will increase productivity.

This is even true in high technology companies. "In the old days, if someone came to me and said, 'I need 40 386 machines,' I would have signed off on it," Crummey says. "Now I'd tell them, 'get out of here unless you can justify it.'"

One of the major problems with showing that small computers can increase productivity is that we still do not have a good way of measuring managerial and executive productivity.

Generally speaking, the larger the knowledge component in a job, the harder it is to measure productivity. In most companies, the simple jobs were the first ones to be automated. Clerks began doing accounting on microcomputers, secretaries traded in their typewriters for word processors. The productivity of data entry operators is easy to measure. They are routinely checked on their keystrokes per hour and the number of mistakes they make.

Knowledge workers are much harder to measure. Their "output" is likely to be an intangible such as a more smoothly running department or an organization that is more responsive to customer needs.

"We know the answer to measuring blue collar productivity," says Crummey. "But we have never known the answer to measuring white collar productivity."

The most common measure of productivity is in dollars of output per worker. This is fine for the people on the assembly line, but how do you measure an executive's output?

"We don't measure people by how many reports they put out," Crummey says.

There are other problems with measuring productivity increases with small computers. For one thing, small computers, properly used, often change the nature of the job. In his Comdex speech, Manzi cited the example of the Travelers Companies insurance group. Travelers cut its clerical staff in half, Manzi said. "Then they hired 250 registered nurses and put them at PC terminals to reevaluate medical insurance claims. Despite the increase in salary payout, the nurses' input resulted in significant savings."

Again, the higher the knowledge component of the job, the greater the change is likely to be. An accounting manager with a spreadsheet can do much more planning and exploration of alternate scenarios than an accounting manager who uses manual methods. The title is the same, but the computer-aided manager can do significantly more long-range thinking and be much better prepared for changing conditions.

Or again, the manager may ostensibly be doing the same job, but doing it in more depth and detail. A sales manager still manages salespeople, but with a computer and the appropriate software, he can track performance and order information much more closely.

The result, Manzi said, is that traditional line managers and product managers can become idea managers instead. "An idea manager and his staff spend less time searching for information and more time exploring information relationships, working on strategy, and improving old products and developing new ones."

This is a very real benefit to the organization, but it is extremely difficult to measure objectively. Many of the other benefits from using computers suffer from similar problems when productivity is considered. Improved customer service is obviously an important benefit, but how do you measure it in terms of productivity? If two people with computers can do the work of three without computers, there is a dollar savings that can be identified. But what if you still need three people, but now they can provide more timely, accurate information?

Intuitively it is obvious that there are benefits here, but the traditional methods of productivity measurement and cost justification simply do not capture them.

According to some experts, the problem with the conventional measurements is that computers offer two kinds of benefits — yet the usual measurements can track only one of them.

The Advanced Office Systems Consulting practice of Arthur Young & Company, a major consulting firm, divides the benefits of computers and office automation equipment into "hard dollar" savings and "soft dollar" benefits. Hard dollars are directly measurable savings computers produce. They include reducing material costs, reducing the size of the work force and reducing the use of outside services such as temporary help agencies and courier services. These are the kind of benefits that the usual measurements of productivity track.

Soft dollar benefits, on the other

hand, cannot be easily quantified. They include things like improved work quality, more timely information for decisions and improved employee morale. These are the advantages that slip through the cracks of the conventional measurements, yet they are increasingly important to businesses.

As the economy grows more competitive, more corporations are finding that information is a strategic resource. Planning horizons are shrinking as companies respond to radical changes in the marketplace. Long-range plans are increasingly being replaced by a more flexible approach that emphasizes rapid response to changing conditions.

This kind of management vitally depends on better information. Companies need more flexible, accurate and up-to-date information to make this approach work — and computers are a vital part of getting that information. In their book, *The Information Edge*, N. Dean Meyer and Mary E. Boone give case studies of over 60 Fortune 500 companies where information tools have had an impact on the company's bottom line. According to Meyer and Boone, office automation tools such as microcomputers and local area networks will increasingly provide competitive advantages for companies that use them to improve the "intelligence" of the organization. This is already happening, they say, and it will become more pronounced as systems evolve.

There are examples of this process everywhere, not just in the traditional office. For instance, an increasing number of manufacturers are going to just-in-time systems. The essence of just-in-time manufacturing (or "kanban" as the Japanese call it) is that all the excess inventory is wrung out of the factory. Parts and raw materials are scheduled to arrive exactly when they are needed rather than being stockpiled. The just-in-time system has two effects. First, it cuts the cost of inventory on the shop floor. Secondly, and more subtly, it ruthlessly exposes bottlenecks and inefficiencies in the process itself. There is no extra slack in the system to hide weaknesses.

Just-in-time manufacturing offers major advantages, but in order to make it work, the company must have accurate and timely inventory information. That means that managers must know exact inventory levels and that means using computers extensively.

There are similar stories from all sorts of industries. Salespeople use electronic mail and portable computers to free themselves from paperwork so they can spend more time selling. Retailers use computers to hold their inventories to an absolute minimum. Physicians transmit insurance claims electronically to speed up processing. The results of having better information faster are everywhere in modern business, but much of the time they are soft dollar benefits and are hard to quantify.

As a rule, top management tends to emphasize hard dollar savings when considering new equipment. In part, this is because the savings are easier to measure, but Crummey says it is also because top managers generally don't use PCs as much as their subordinates.

"Upper management isn't accustomed to these products," Crummey says. "The last people to adopt a technology are the senior managers because they weren't brought up with it. Top management sees these budget dollars coming through, but they don't use PCs themselves. So they are saying 'until we understand the payoff, why should we spend the money?'

"I don't think they will do it just to save money on people. I think they will do it because they can have more access to higher quality information. That's where the edge is in business today.

"It has to move in that direction because there is no other way for it to move. If you can't justify the expense based on strategic importance, you can't justify it anywhere. White collar productivity is the business America is in today and white collar people need good, timely information to be productive."

One of the most fertile areas for productivity increases today, Crummey says, both in hard dollars and soft dollars, is connectivity.

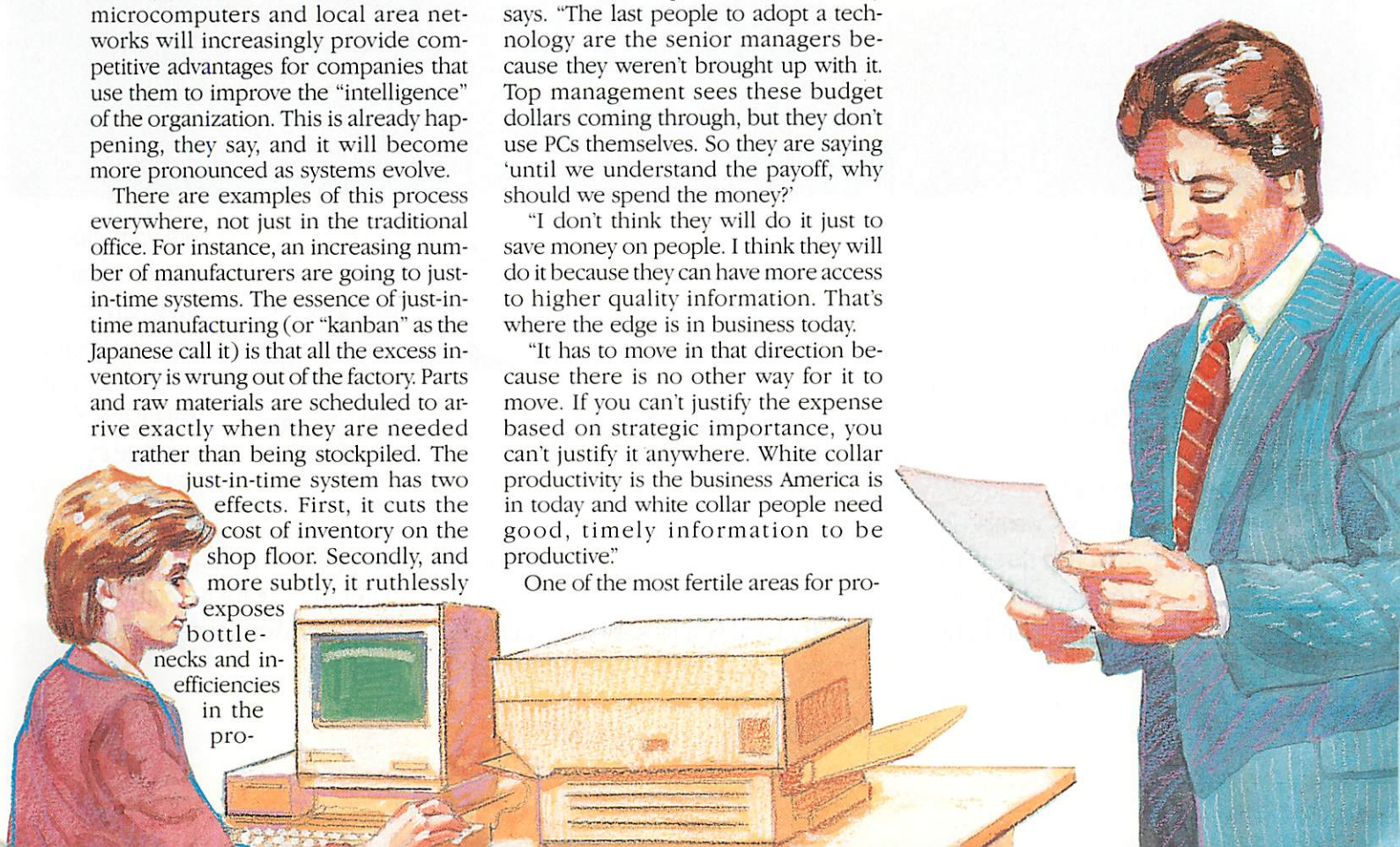
"Individuals using PCs are getting more productivity for themselves only. They are typing memos faster and clearly an electronic spreadsheet is faster than doing one on a ledger. But top management doesn't want just individual productivity, they want group productivity and overall company productivity."

The way to get that is by networking PCs together so they can share information, Crummey says. This increases everyone's productivity.

Ultimately, technology of any sort has to be justified on the basis of what it can do for the company.

"Companies have got to understand that information technology should be chosen as a result of business needs," says Crummey. "Needs and objectives come first and the technology comes second." ▣

Rick Cook is a freelance writer in Phoenix, Arizona.



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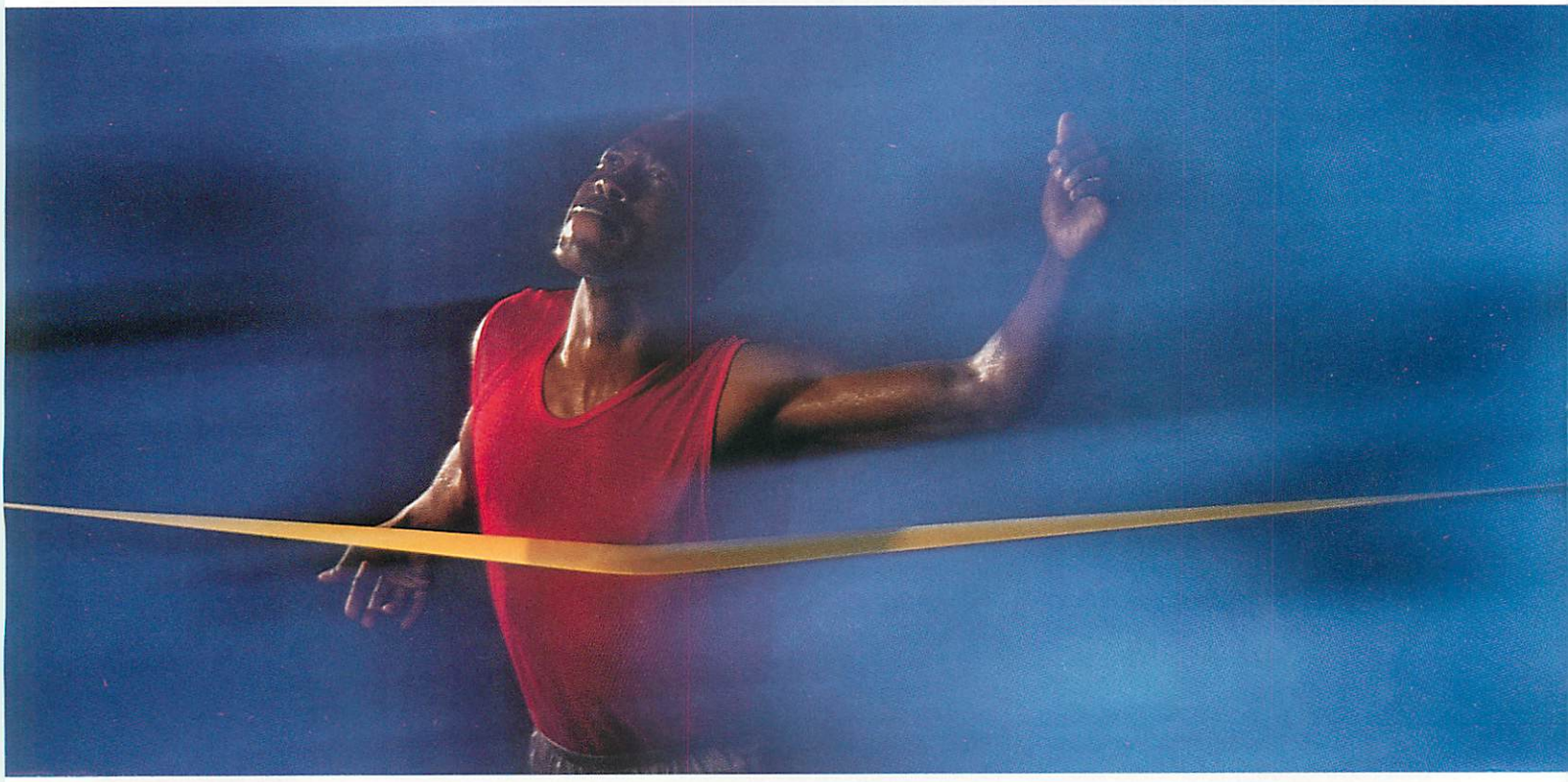

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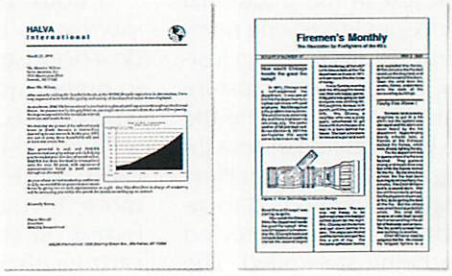

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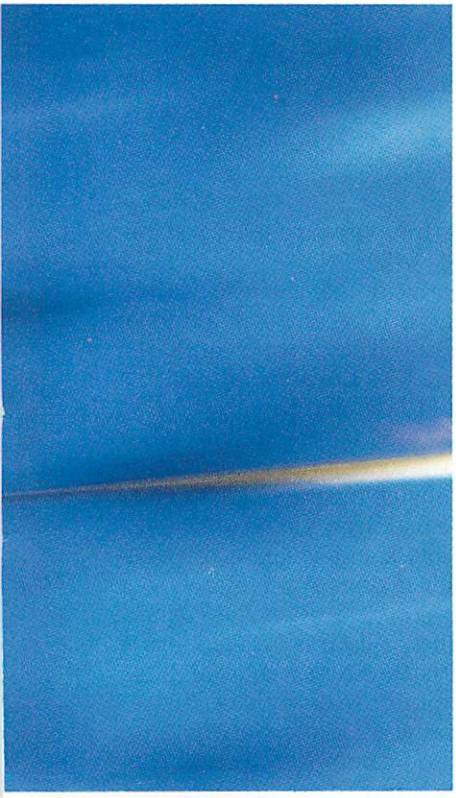

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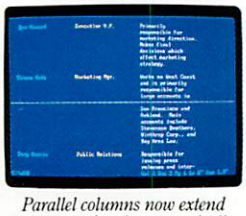

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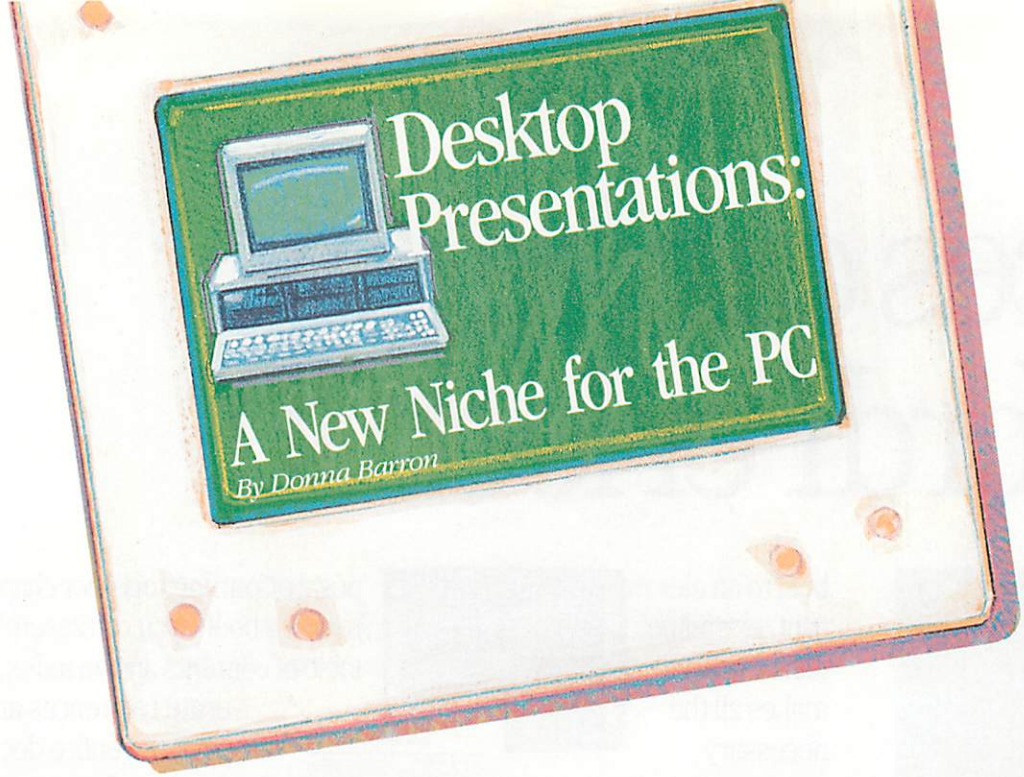


Desktop Presentations: A New Niche for the PC

By Donna Barron

Successful business presentations almost invariably include graphics. Think about it. How many presentations have you been to lately that didn't have a screen and some sort of projection device set up?

The reason is simple. Whether they're unpretentious hand-drawn transparencies or elegant full-color 35mm slides, graphics are attention getters. A simple line graph can help crystallize your data. A colorful pie chart can add pizzazz to what might otherwise become a dull recitation of numbers. Even text-only visuals like bullet charts can reinforce your ideas and endow your presentations with an air of professionalism.

Not only can you get your point across more easily when you've got a picture to back it up, but also research has shown that adding visuals to a verbal presentation can increase information retention by as much as 50 percent.

With so much data being generated by computers these days, it would seem only natural that people would want to use their computers to create the graphs and charts they need to display their data as well. However, this has not been the case and, unlike desktop publishing which took off like a rocket, desktop presentations have been very slow to catch on.

"Desktop presentations represent a fledgling application and most people simply haven't realized they can make slides and transparencies directly on the computer," says Dr. William Coggshall, president of Desktop Presentations, Inc., in Mountain View, Calif. According to Dr. Coggshall, fewer than 10 percent of the 35mm slides used in business presentations are currently prepared by computerized methods.

As an increasing number of people are being exposed to computer-generated presentations, however, this is beginning to change. "Once a group has seen a presentation prepared on the Macintosh, it's usually just a matter of months before they switch from transparencies made on a typewriter to transparencies printed out on the LaserWriter," says Paul White, an information systems analyst at E. I. Du Pont in Wilmington, Del.

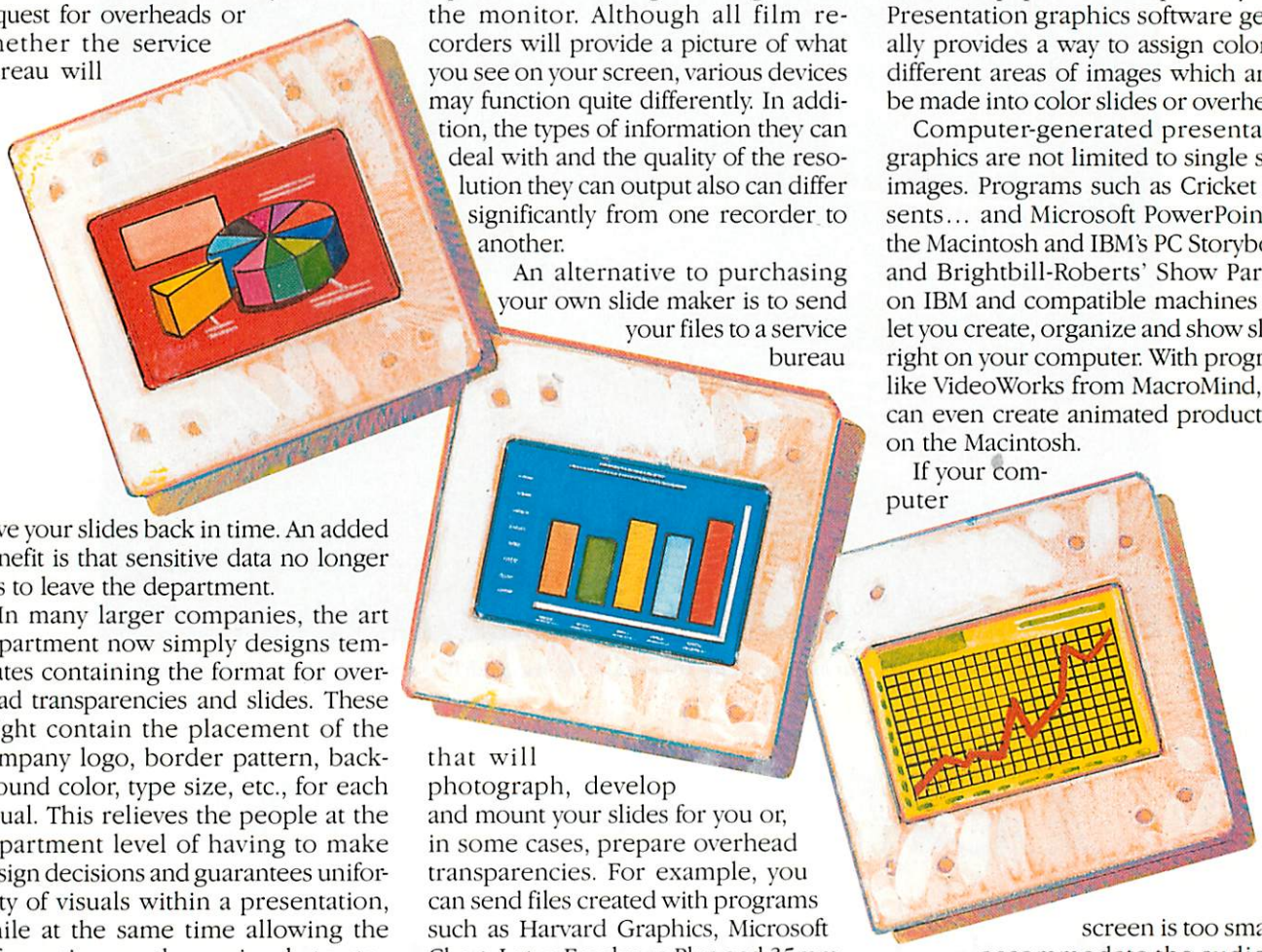
While Apple Computer led the way into the desktop publishing revolution with its Macintosh, so far there has been neither a dominant nor a vocal vendor in the presentations market. This should be changing, however. While the CGA and EGA color graphics standards have been around for some time in the IBM and compatible world, Apple only recently introduced color display on its new Macintosh II. Now that it has color, Apple plans to begin promoting desktop presentations as its second "Trojan Horse" (its first was desktop publishing) in order to sneak more Macintosh computers into previously all-IBM offices. As Apple draws more attention to the presentations area, more and easier to use products should become available for both the Macintosh and the IBM/compatible markets. Digital Research, for example, already provides a graphic interface with its GEM presentation software products for the IBM.

Another factor that will give desktop presentations a boost is the introduction of relatively low cost color output devices such as the Hewlett-Packard PaintJet ($1,395) and the Xerox 4020 ($1,495–$1,595) inkjet printers, which now make it economical to create color transparencies on the departmental level. "We had been forced to be satisfied with black and white for our overheads, but it doesn't have the same impact as color," says Du Pont's White. One of the problems he faced, says White, was finding a way to use the same output devices with his Macintoshes that he could use with his IBMs. The solution came from Cricket Software which now provides Macintosh drivers for both the HP and Xerox printers (as well as the Matrix Instruments SlideWriter) with its presentation software products.

In most large companies, visuals are either prepared by an in-house art department or sent out to a service bureau. Smaller companies are often limited to what they can do with a typewriter, a Magic Marker and a piece of transparency film. For more professional looking visuals, they turn to a service bureau to prepare slides or transparencies. This can mean an outlay of as much as $30–$100 per slide.

While keeping costs down is a major concern, it's not the only criteria for wanting to keep the preparation of visuals within a company or department. Whether it is the nature of pre-

sentations to come up on short notice or of presenters to procrastinate, more often than not the preparation of visuals is a rush-rush affair. One of the most attractive aspects of bringing presentation graphic production down to the departmental level is increased control of the time factor. You no longer have to worry about whether the art department will find time to fit in your request for overheads or whether the service bureau will have your slides back in time. An added benefit is that sensitive data no longer has to leave the department.



In many larger companies, the art department now simply designs templates containing the format for overhead transparencies and slides. These might contain the placement of the company logo, border pattern, background color, type size, etc., for each visual. This relieves the people at the department level of having to make design decisions and guarantees uniformity of visuals within a presentation, while at the same time allowing the information on those visuals to stay within the department.

While overheads can simply be printed on a laser or color inkjet printer, slide making requires a different type of equipment. Up until recently, most high quality slides for use with presentations — whether they were created by in-house art departments or outside service companies — required dedicated slide making systems such as those from Genigraphic or Dicomed, which could carry price tags of well over $100,000. Today, however, equipment is available that lets you photograph 35mm slides directly from your own computer and, in the case of the Polaroid Palette ($1,999) and Palette Plus ($2,999), even develop them right at your desktop.

Slide-making devices, such as the Polaroid Palette, the ImageMaker ($4,995) from Presentation Technologies of Sunnyvale, Calif., and the SlideWriter ($11,795) from Matrix Instruments of Orangeburg, N.Y., don't physically photograph the computer screen, but rather they hook into the computer and tap into the video signal being sent to the monitor. Although all film recorders will provide a picture of what you see on your screen, various devices may function quite differently. In addition, the types of information they can deal with and the quality of the resolution they can output also can differ significantly from one recorder to another.

An alternative to purchasing your own slide maker is to send your files to a service bureau that will photograph, develop and mount your slides for you or, in some cases, prepare overhead transparencies. For example, you can send files created with programs such as Harvard Graphics, Microsoft Chart, Lotus Freelance Plus and 35mm Express to Magicorp of Elmsford, N.Y., by either modem or mail. Cricket Software has entered into a similar agreement with Autographix of Waltham, Mass., and Ashton-Tate recently established its own graphic service. CompuFilm Corp. in San Francisco is offering prepaid slide mailer kits. These let you transfer your images to a special CompuFilm disk, which you then mail to the company. The 10-slide pack runs $149. Most slide services charge about $15 per image and, for an additional postage fee, will return slides by air express the day after they are received. You may have a modem-equipped photo lab in your area that can provide similar services.

While color is a definite plus when it comes to presentation graphics, having a color monitor, or even a color output device is not a prerequisite for creating color presentations. Devices such as the Kroy Color Plus ($875) from Kroy Inc. of Scottsdale Ariz., and Omnicrom ($995) from Omnicolor of Anaheim, Calif., make it easy to add color to laser-printed sheets of paper or transparency film. Presentation graphics software generally provides a way to assign colors to different areas of images which are to be made into color slides or overheads.

Computer-generated presentation graphics are not limited to single static images. Programs such as Cricket Presents... and Microsoft PowerPoint on the Macintosh and IBM's PC Storyboard and Brightbill-Roberts' Show Partner on IBM and compatible machines also let you create, organize and show slides right on your computer. With programs like VideoWorks from MacroMind, you can even create animated productions on the Macintosh.

If your computer screen is too small to accommodate the audience you want to assemble for your presentation, there are projection devices such as the Kodak Datashow ($1,270) or the PC Viewer ($895) from In Focus Systems of Tualitin, Ore. Both are monochrome liquid crystal devices that can pick up the video signal from your computer. When placed on top of an overhead projector, they provide a projected image of whatever's on your screen.

Desktop presentations may have been slow getting started but with the current rash of products and services being introduced in this area, they're picking up steam rapidly and may well become the next hot application. ▣

Donna Barron is a freelance writer in Hollywood, Florida.

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MicroAge will continue to work with your people as your business grows and your needs change. Our authorized training, service and support ensure that you'll get the maximum return from your Macintosh investment.

For some fast facts on how learning to use an Apple Macintosh system can save your company time and money, come to MicroAge today.

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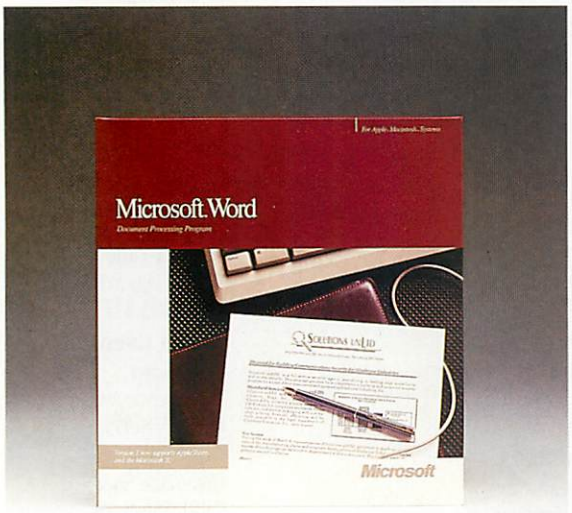
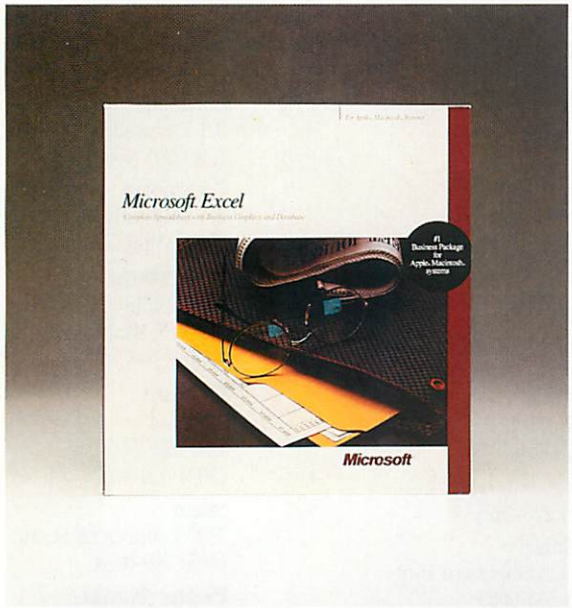
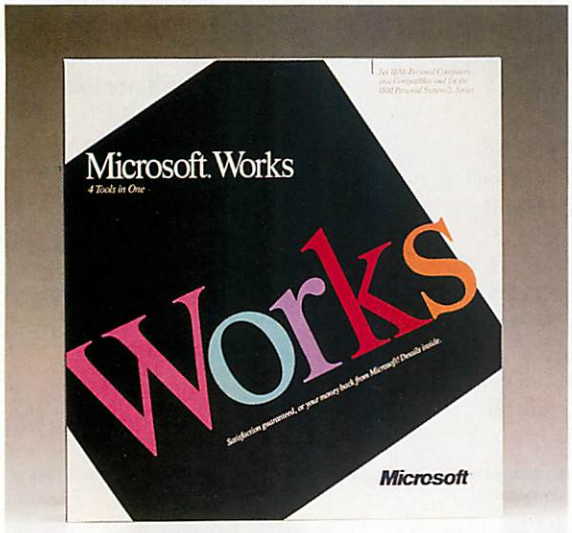
How To Make The Most Of Your Micros







Microsoft® software at MicroAge®

If your business wants maximum productivity from its microcomputers, then you should know about Microsoft® software at MicroAge.®

Microsoft is the world's leading publisher of software for personal computers, with a complete line of productivity tools that are powerful, easy to use, and cost-effective. Whether you're using IBM-compatible systems or the Apple Macintosh, Microsoft software can maximize your computer's performance.

For starters, there's Microsoft Excel — the spreadsheet and business graphics program that's winning raves from number crunchers. Microsoft Excel's analytic tools let you display and link multiple spreadsheets — and its versatile graphics functions make it easy to instantly create graphs and charts.

In word processing, Microsoft Word is setting the standard, with powerful text management and time-saving capabilities. Microsoft Word helps everyone from the executive to the secretary add high impact to their daily output.

And, if you're looking to put powerful programs together, take a look at Microsoft Works — the complete personal productivity tool that includes spreadsheet, database, word processing and communications functions. It's the ideal all-in-one package for the small business or the corporate department.

You can see Microsoft software at MicroAge — one of the world's leading microcomputer sales and support organizations, with more than 200 locations throughout North America, Europe and Japan. MicroAge is authorized to sell, service and support computer equipment from the industry's leading manufacturers, including Microsoft.

MicroAge is one of the best-qualified organizations to work with your business. At MicroAge you'll find more than hardware and software — you'll find experienced professionals who provide complete, leading-edge *solutions* in accounting, desktop publishing, financial management, networking and more.

Call MicroAge today…and start making the most of your microcomputer investment.

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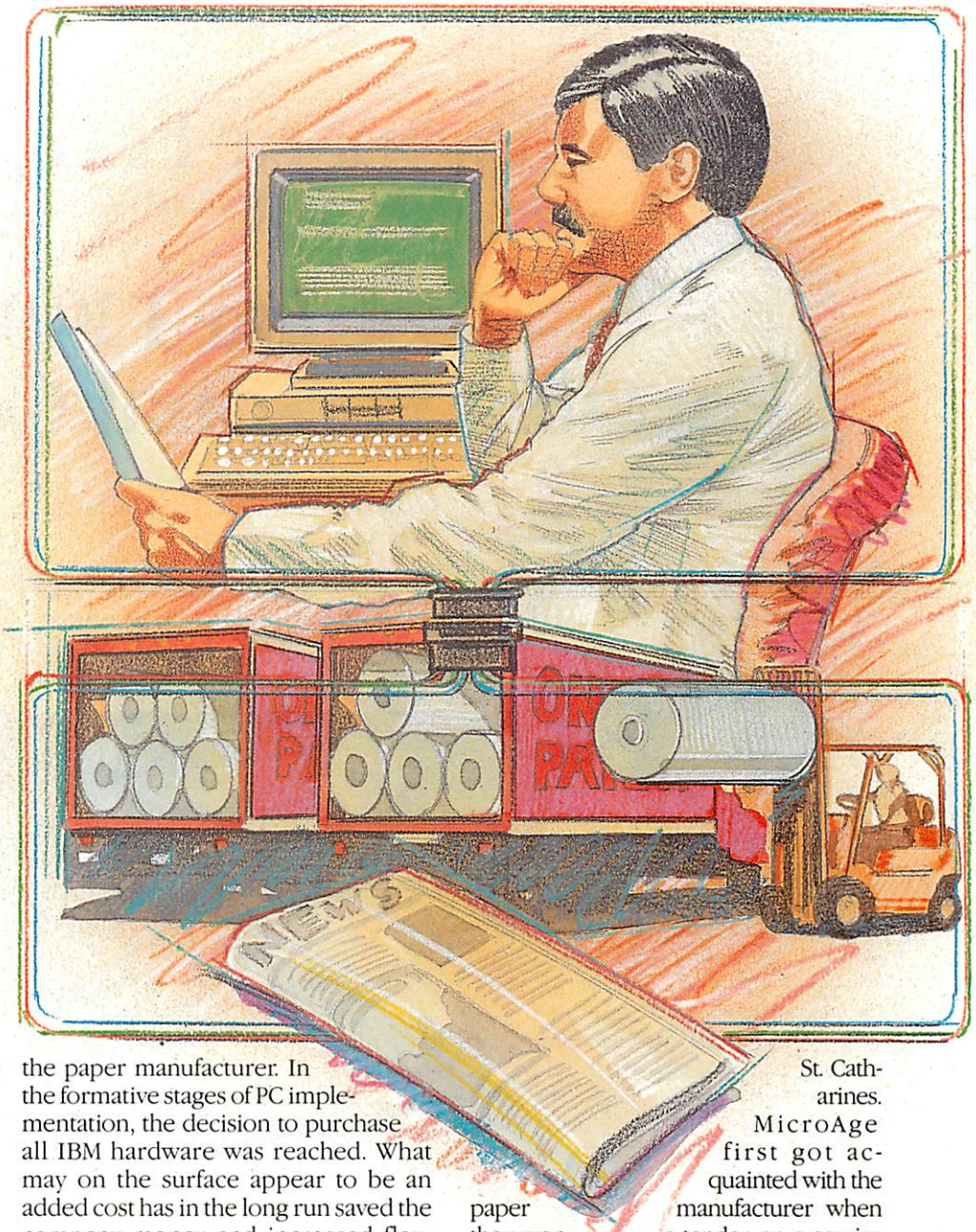
Quebec & Ontario Paper Standardizes for Future Growth



The next time you pick up a newspaper, your attention may be riveted on the printed word, but for the 3000 employees of Quebec & Ontario Paper in St. Catharines, Ontario, it's the pages that capture their attention.

Just a border hop from Buffalo, New York, Quebec & Ontario Paper manufactures the gigantic rolls of newsprint that feed pressrooms throughout the world. While most of the company's sales are to printers in Canada and the U.S., products also find their way to China, Egypt, and England.

A forestry operation harvests the roundwood that is sent to one of two company mills. At one of the mills, the new fiber is blended with recycled paper to produce different grades of newsprint, while the other mill produces paper from all new wood.

Five years ago, Quebec & Ontario began to consider how microcomputers might fit into the company's operations. Since then, Jim Bagozzi, director of Process and Information Technology, says, "We have seen tremendous growth in the use of PCs. We felt task-oriented functions such as financial and market planning could be done more efficiently if planners had desktop computer access."

Financial planners could make forecasts, projections and plot "what if" scenarios. Market planners could calculate sales projections, make distribution models, and analyze target markets. Today 80 microcomputers are in use at the corporate office and at two mills. Seventy percent of the PCs are networked to a mainframe by means of a 5250 emulation and file transfer system.

Standardization has been the key at the paper manufacturer. In the formative stages of PC implementation, the decision to purchase all IBM hardware was reached. What may on the surface appear to be an added cost has in the long run saved the company money and increased flexibility. Bagozzi notes the company has been pleased with that decision. "We chose IBM because we wanted to grow together to achieve standardization. That has been successful. It has allowed us to make good use of new technology."

Along with the PCs, ATs, and XTs already in use, IBM PS/2s are now being introduced as equipment is updated.

Standardization with software is just as important at Quebec & Ontario Paper. "It gives us good control over what is coming into the company," says Bagozzi. Among software programs in use are Lotus 1-2-3, dBASE III+, AutoCAD, and various statistical programs. File transfer programs are used to download database information from the mainframe.

Quebec & Ontario Paper has been working hand in hand with MicroAge of St. Catharines. MicroAge first got acquainted with the paper manufacturer when they won a tender on a service contract. "We liked the service and support we received," says Bagozzi. "We have continued to use them when we were ready to purchase new equipment."

Employees of Quebec & Ontario Paper are among local users who meet regularly as part of an executive users' group sponsored by MicroAge. For these sophisticated users, meetings span well beyond topics usually covered by users' groups. Programs include roundtable discussions and presentations of interest to corporate users. "The meetings are informative and very futures oriented," says Bagozzi.

While to the average newspaper reader there may be a story on every page, to the behind-the-scenes paper manufacturer it's the pages that are making the story — a story that's heavily influenced by maximizing the benefits of modern computer technology. ▣

PRODUCT FEATURE

Toshiba T1000 Portable Personal Computer

Lightest and smallest, and therefore most portable, of Toshiba's line of six portable personal computers is the T1000. Weighing only 6.4 pounds, the T1000 is, however, a fully-featured PC with a full-size keyboard and a highly efficient 80C88 microprocessor running at 4.77 megahertz.

The T1000 is geared specifically for students, salespeople, real estate and insurance agents, accountants and other mobile professionals who need constant access to full computing power.

Designed for efficient use of a single drive system, the T1000 is equipped with a 720-kilobyte 3.5-inch diskette drive. It operates with MS-DOS 2.11 in read-only-memory (ROM). Automatic "booting up" from ROM leaves the diskette drive free for storing application programs.

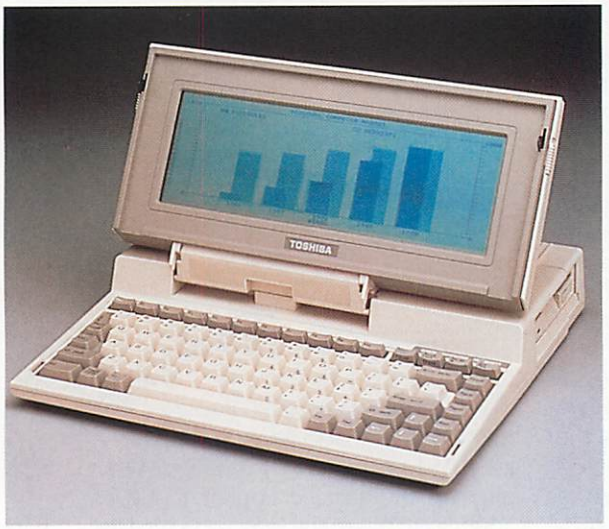
Measuring 12.2 inches wide by 2.05 inches high by 11 inches deep, with a built-in handle, the computer will easily fit in a briefcase, but an optional carrying case with shoulder strap is available.

The T1000 is equipped with a rechargeable NiCad battery for up to five hours of cordless computer use. The unit's 110 VAC power adapter can be used for recharging or line operation. An optional automobile power adapter is available to provide power to the PC while users are on the road.

Standard with the computer is 512KB of random access memory (RAM), and an optional 768Card, which can be installed easily by the user into an internal slot, expands the standard memory to 1.2 megabytes.

For conservation of power, the T1000 has an 80-by 25-line liquid crystal display, featuring the latest "supertwist" technology, 640 by 200 pixel resolution, and IBM Color Graphics Adapter (CGA) compatibility. The screen is adjustable over a full 180 degrees.

An integrated numeric keypad and dedicated cursor control keys are prominent on its 82-key keyboard with a special "Fn" key for complete IBM compatibility. An external 17-key numeric and cursor control keypad is optional.



Full system capabilities are provided by the T1000's six standard ports: parallel printer, RS-232C serial, RGB color video, composite video, external 5.25-inch diskette drive, and external numeric keypad.

A real-time clock/calendar and space for Toshiba's optional 300/1200 bits-per-second Hayes-compatible modem are also built in.

Documentation for the T1000 includes a user manual and MS-DOS quick reference card. A complete MS-DOS 2.11 manual is also available. As an option, users can purchase MS-DOS 3.2 on a 3.5-inch diskette with manual.

Also available as options to enhance the computer are Toshiba's 5.25-inch external diskette drive and Floppy Link, a device that connects a desktop PC's drive to the T1000. Both provide a mode for transferring data to and from 5.25-inch diskettes.

Toshiba's one-year parts and labor warranty, including free enrollment in the "Exceptional Care" replacement program, supports the computer.

T1000 SPECIFICATIONS

OPERATING SYSTEM: MS-DOS 2.11 (in ROM).
PROCESSOR: 80C88 running at 4.77 MHz.
MEMORY: 512KB (expandable with LIM-EMS card).
DISK DRIVE: One 3.5-inch 720KB diskette drive.
DISPLAY: "Supertwist" liquid crystal display,
80 characters × 25 lines,
640 × 200 pixels,
position adjustable a full 180 degrees.
KEYBOARD: 82 keys.
STANDARD INTERFACES:
Parallel printer, RS-232C serial, RGB color video,
Monochrome composite video,
External diskette drive,
Numeric keypad.
DIMENSIONS: (W × H × D)
12.2″ × 2.05″ × 11″.
WEIGHT: 6.4 pounds.
POWER: Rechargeable NiCad battery or AC line.
ACCESSORIES: 110 VAC adapter for recharging and line power operation.
OPTIONS: Internal 300/1200 bps Hayes-compatible modem,
Internal 768KB memory card (128KB user RAM plus 640KB LIM-EMS),
External 5.25-inch diskette drive,
Automobile power adapter,
17-key numeric keypad,
Floppy Link,
MS-DOS 3.2 on 3.5-inch diskette,
Universal AC adapter — 100 — 264 VAC,
Carrying case. ▣

The preceding article was provided by Toshiba America, Inc.

Lotus 1-2-3 Small Business Kit
Designed to Assist Business Decision Making

The Lotus commitment to business analysis began with the introduction of 1-2-3 in 1983, and has grown substantially during the past four years. Today, more than one-third of all copies of 1-2-3 sold through stores are sold to owners, managers or employees of small businesses.

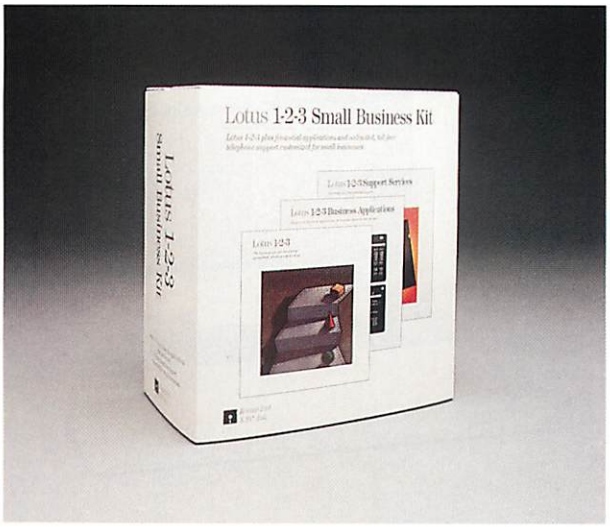
Small businesses have found that Lotus 1-2-3 is a valuable addition to the accounting software they use to run their businesses. Using 1-2-3 as a basic business tool, each organization can analyze the data from its balance sheet and income statement, to identify trends and test "what if" scenarios. The results of this analysis can speed the business decision-making process, and ultimately improve day-to-day operations.

With the Lotus 1-2-3 Small Business Kit, Lotus has formalized its commitment to smaller organizations, providing customized applications and support services to meet their particular needs. The U.S. Small Business Administration (SBA) estimates that these small enterprises, with fewer than 100 people, comprise 96 percent of all business establishments.

The Lotus 1-2-3 Small Business Kit offers small business owners and managers, who are often working with limited time and resources, tools that transform the existing data from their organization's financial statements into information essential to current decision making.

The 1-2-3 Small Business Kit includes Lotus 1-2-3, Lotus Support Services, a Small Business Directory, and 1-2-3 Business Applications.

Lotus 1-2-3 is business software that fully integrates the essential spreadsheet, graphics and database functions. The 1-2-3 spreadsheet function serves as a framework for small business analysis; 1-2-3 graphics can be used to visually summarize financial data in line, x-y, and stacked bar graphs, as well as pie charts and exploded pie charts; and 1-2-3's database function stores vital information such as customer records, account status and inventory updates.



The 1-2-3 Small Business Kit support service includes a customized technical support program to help small business users gain proficiency in 1-2-3, the small business financial applications and any other Lotus software they may own. For quick solutions from the experts, a dedicated toll-free telephone line provides unlimited access to Lotus support services for the small business user. In addition, a guide containing common technical and customer service questions and answers offers information on standard technical issues, upgrades, warranty, and exchanges.The support service is renewable annually.

To further assist small business owners and managers, the 1-2-3 Small Business Kit includes an updated directory of local and regional SBA centers. These centers provide specific services to the small business market on a national and regional basis. Small businesses also can identify the nearest Lotus Authorized Training Centers, and general and vertical market applications that can be used with 1-2-3, when purchasing the kit.

1-2-3 Business Applications provide a unified set of easy-to-use applications that cover the basics of financial analysis and planning and require only the information recorded on the company income statement and balance sheet. The applications include:

- Cash Flow — Produces a statement of Cash Flow from Operations;
- Source and Use of Cash — Completes the picture of the cash system of the business by highlighting the nonoperating items that affect inflow and outflow of cash;
- Financial Ratios — Calculates the key financial relationships business managers should know for a thorough understanding of their financial standing;
- Cost-Volume-Profit — Creates a contribution format income statement based on fixed and variable cost and calculates break-even volume;
- Cash Budget — Projects a cash budget for the company for 12 future time periods, identifying both the timing and amount of required new financing;
- Pro Forma Financial Statement — Allows for the creation of estimated financial statements and "what-if" analyses.

The 1-2-3 Small Business Kit assists owners and managers in understanding the relationship between their company's day-to-day operations and its overall financial position by supplying financial analysis and planning. The Kit, which started shipping in November 1987, has a suggested list price of $595. ▣

The preceding article was supplied by Lotus Development Corp.

PRODUCT FEATURE

Compaq's Newest Portable: 20 MHz of Power

Many people expected Compaq to introduce a 386-based portable following its 1986 debut of the Compaq Deskpro 386, but none predicted how much power, flexibility and performance Compaq could integrate into such a small package. The company calls the new Compaq Portable 386 "pound-for-pound the most powerful computer ever built."

Compaq claims the new Compaq Portable 386 runs the most popular industry-standard software up to 25 percent faster than high performance 16 MHz 80386-based PCs.

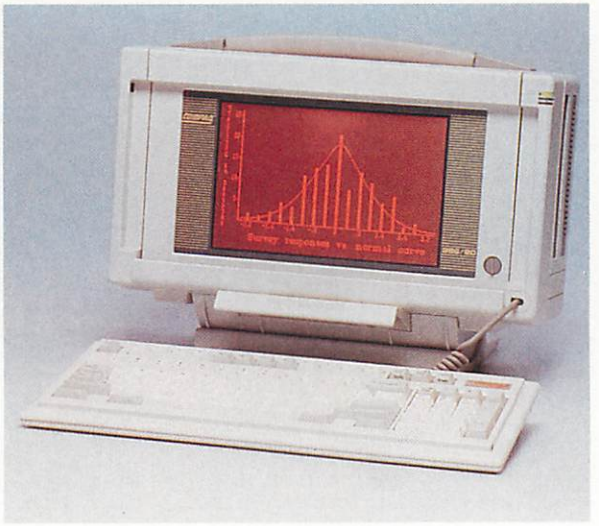
The Compaq Portable 386 provides professionals such as auditors, sales representatives and field engineers with uncompromising computing power and the portability they require, while traveling or working at client locations.

In addition, the industry-standard compatibility of the Compaq Portable 386 means that users are not required to change their business practices or sacrifice the use of their favorite application software and hardware expansion products.

The 5¼-inch, 1.2-megabyte diskette drive that is standard on the Compaq Portable 386 means that work done in the office, on the road or at a remote location is automatically interchangeable with the majority of installed personal computers.

The new Compaq Portable 386 has been designed around the next generation of Intel's 80386 microprocessor running at 20 MHz. All major system components have been engineered to maximize system performance, including memory, data storage, expandability, display, keyboard and communications.

- **Memory** — The Compaq Portable 386 comes standard with one megabyte of high-speed (80 nanosecond) 32-bit RAM, which can be expanded to 10 megabytes in the main system unit.
- **Data Storage** — The Compaq Portable 386 features a choice of 40-megabyte or 100-megabyte high performance disk drives that are shock-mounted for ruggedness and reliability. An optional 40-megabyte fixed disk drive backup (tape) expansion unit provides a quick and simple method for backing up data on fixed disk drives.



- **Expandability** — In addition to internal memory expansion of up to 10 megabytes of high performance 32-bit RAM and the 40-megabyte fixed disk drive backup (tape) expansion unit, the Compaq Portable 386 can provide further user expansion with the optional 8/16-bit expansion unit. It incorporates two full size, industry standard expansion slots and can accommodate the most popular add-on boards for personal computers. It securely fastens to the back of the Compaq Portable 386 when in use and can be moved easily with the computer or detached and left behind.
- **Display** — The Compaq Portable 386 features a high-resolution plasma display that is adjustable for maximum readability and viewer comfort. The display features an automatic cutoff and provides text and graphics on the same screen.
- **Keyboard** — The Compaq Portable 386, both Model 40 and Model 100, comes standard with the new Compaq Portable Enhanced Keyboard, featuring 12 programmable keys and a 10-key numeric/cursor keypad.
- **Communications** — 1200-baud or 2400-baud internal Hayes-compatible modems are available as options. Both models of the Compaq Portable 386 come standard with parallel and asynchronous communications and RGBI interfaces.
- **Power** — The Compaq Portable 386 is AC powered and includes a standard automatic power line switching capability for international use that automatically senses and switches from 110 volt to 220-volt current.

Microsoft's Windows/386, which was codeveloped by Compaq and Microsoft, is an operating environment incorporating the same graphical user interface as OS/2's Presentation Manager and allows true multitasking of MS-DOS and Windows applications on 80386-based personal computers.

The Compaq Portable 386 operates with MS-DOS Version 3.2, and later. OS/2, which operates on all 80286-and 80386-based personal computers, will run quite well on the Compaq Portable 386, according to Compaq. The power of the Compaq Portable 386, teamed with OS/2 and the new applications that will run under OS/2, makes it an unbeatable next-generation computer on your desktop or on the run. ▣

The preceding article was supplied by Compaq Computer Corp.

Business smart, letter sharp with a passion for productivity.

Meet the New 24-Pin OKIDATA 393

If you like to do three things at once, you'll love the new 393.

It's so eager to work, it prints on almost anything: letterhead, labels, acetates, even forms. With razor-sharp letter quality. In black and color.

Touch a button and 'park' your computer paper. Then switch instantly to envelopes or cut sheets.

In 'work done' tests, the 393 beat the competition by 20%. And its 30K buffer gives your screen back quickly.

Best of all, the 393 is made in the tradition of toughness OKIDATA's been building for years.

Meet the printer that shares your passion for productivity. The new 393. Call 1-800-OKIDATA, ext. 23, for the dealer nearest you.

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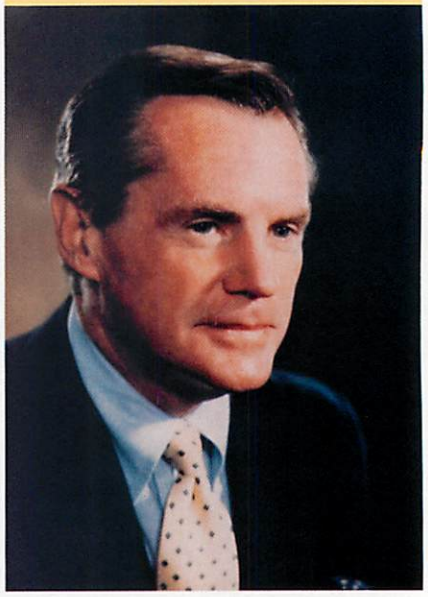
A Perspective On Loyalty

By F. G. "Buck" Rodgers



When an organization demands and gets excellence from its people, the excitement eventually becomes contagious. Its customers, too, become optimistic and enthusiastic, and think this is the kind of organization I want to do business with.

There isn't a company or businessperson who cannot learn something worthwhile from the International Business Machines Corp. (IBM). That's because the way IBM operates isn't expensive, nor is it exclusive. More than anything else, IBM deals with people, their behavior and their values.

The company has grown to its great size — more than 400,000 employees and annual sales in excess of $50 billion — with incredible speed, because of its insatiable appetite to be the best. Of course, IBM makes useful products, but it is the quest for excellence that attracts and nurtures high achievers. The continual influx of this bright new talent keeps the company youthful, vibrant and light on its feet. But age is not a primary factor, since almost all IBM employees spend their entire professional careers with the company.

We live in an era of paradox, contradiction, turbulence, opportunity and above all, change. While a business must be flexible, always regrouping and changing with the times, there must be certain bedrock beliefs to serve as its guiding force. A company's beliefs must remain irrevocable, deeply embedded throughout time. These beliefs, if adhered to by all levels of management, produce tremendous loyalty throughout an organization.

Loyalty is achieved by having a set of beliefs and principles people subscribe to, support and practice. I wish that every business would establish a set of principles to serve as a guide for its people. Although the best time to do it is upon starting a business, few fledgling entrepreneurs think in such terms. They are too busy making a living to formulate principles that will guide them in what seems the distant future. At some point, though, their philosophies should be recorded, and once formulated, they should not be kept secret, but be loud and clear to everyone.

That is exactly what Thomas Watson Sr. did for IBM when he founded it in 1914. Like any ambitious entrepreneur, he wanted his company, which at the time produced butcher scales and time clocks, to be financially successful. But he also wanted it to reflect some of his personal values. These values, which he put down on paper, became the foundation for his new company and anyone who worked for him thereafter knew exactly what his company was all about.

Watson's tenets, which were reaffirmed by his son when he became IBM's second chief executive officer in 1956, are uncomplicated and can be understood easily by everyone, from the chairman's office to the mailroom. They are:

- The individual must be respected.
- The customer must be given the best possible service.
- Excellence and superior performance must be pursued.

These commitments, which remain at the heart of the company's operation, are so revered and encompassing that every action and policy is directly influenced by them. Some people may have difficulty imagining that a corporation the size of IBM maintains these humanistic characteristics, but it does. And I'm convinced that these very human qualities are responsible for IBM's incredible success.

To be important in a business environment, principles first must be understood clearly by everyone in management. They must be articulated to every employee and repeated so often that everyone understands how seriously they are to be taken. IBM conscientiously drives home its philosophical messages at meetings, in internal publications, at company gatherings and in private conversations.

Principles, though, quickly can become empty slogans. They are like muscles that turn soft and weak if they are not exercised regularly. They mean nothing if IBM's management does not demonstrate, by personal deeds and actions, what these beliefs stand for. It takes time, but once your people believe you, every facet of your business is affected positively.

Show Some Respect

The individual must be respected. No one can be against this. At least no one would admit to it. But while everyone agrees with the idea, seldom is it found in the doctrine of a business, let alone practiced.

Ever since IBM's earliest days, an ongoing campaign has stressed that each individual makes a difference. Each person gets paid on the basis of

what he produces, not on his longevity. Superior performances are rewarded by recognition, promotions and money. At the same time, IBM doesn't want people to get frustrated and restless because it has them reaching for carrots they cannot quite grasp. It doesn't want them to envy competitors' employees or to look for greener pastures in other industries. Coming up with a compensation package that makes sense for everyone is no simple matter. It must be fair to the employee and to the company, but how it is paid can make a difference in how satisfied the employee is, and how well he or she performs.

At IBM, the compensation strategy has to accomplish several things.

- It has to provide employees with a sense of security.
- The pay package must include strong incentives and motivations which encourage excellence and achievement.
- Every level of management has the ability to recognize a superior performance or specific accomplishment with rewards and awards.

Since IBM opened its doors, the company has had a full-employment tradition. In nearly 60 years, no person employed on a regular basis has lost as much as one hour of working time because of a layoff.

The most dramatic way to maintain full employment is through retraining, which often requires career changes and/or relocation. This doesn't mean that the company is benevolent and paternalistic to the degree that nobody ever has been dismissed for poor performance. IBM couldn't afford to spend so much to reward good performers if it had to subsidize those who didn't produce.

IBM's practice is to promote people from within. Everyone knows that if he works hard and aspires to a higher position, he will have an opportunity to advance. It is frustrating and demoralizing for an ambitious person to work his tail off, striving for a certain job, only to have someone from the outside come in and get it. I know the argument that promoting only from within can lead to inbreeding, but I don't accept it. The negative effect that bringing in outsiders has on morale far outweighs the hazards of inbreeding.

IBM believes that when one respects the individual, one shows consideration for all people — in and out of the company. Management treats everyone who works for IBM with respect and in turn, expects everyone to treat customers, suppliers and even the competition the same way.

Don't Overlook Service

When Watson said that he wanted IBM to provide the best service in the world, he was referring to service by any company, not just in his own industry. To accomplish this, he mandated that IBM would be a customer-oriented company. That is, every part of its operation would focus on the customers' needs. Products would be designed to meet customers' requirements rather than building something that was out of touch with the marketplace.

It's a shame, but we are surprised when we get good service in America today. People don't expect it, they don't demand it, and they settle for a lot less than they should. When customers first are exposed to IBM's brand of service, they usually are taken aback.

"principles first must be understood clearly by everyone..."

To let the customer know how important he is, IBM tries to respond to, if not resolve, any complaint within 24 hours of its receipt. When a customer requests a service call, response is even quicker — frequently within the hour. Even if you do not have an immediate answer, at the very least you owe your customer a telephone reply to acknowledge his request. The service IBM provides goes far beyond making certain that the product sold delivers what was promised. IBM people share their market research, and what they know about advertising and even accounting. They invite customers to IBM-sponsored industry seminars and conferences, providing an environment where customers learn not only from IBM but also from each other. In an industry where repeat business is essential for long-term growth, the initial order is only the beginning. Outstanding service is what brings the customer back to do more business.

Any company can strengthen its position with current customers by improving its service program. It doesn't take additional real estate or a big investment in equipment or personnel. What it takes is a major commitment of the top management, and the resolution that, in time, every employee must make the same commitment.

IBM's third mandate is excellence — the pursuit of all tasks with the idea that they can be accomplished in a superior fashion. The constant goal is zero defects in product and service. Although perfection is impossible, to aim for less lowers expectations and weakens your program.

Excellence begins with the recruiting program. IBM believes that the best students selected from the nation's best colleges may be the most responsive to the company's intensive training program and the most highly motivated to do superior work. So a lot more is involved than simply attracting the outstanding young people. To achieve excellence, they need superior training and must feel compelled to succeed. At IBM, a highly competitive environment creates an atmosphere that nurtures excellence. A great deal of peer pressure exists. With the intensity of competition and the continuous emphasis on education, there is no room for individual complacency. Each year, every IBM manager is given 40 hours of training, and that extends down through the organization. The insistence on peak performance sets a rigid pace. People begin to think that anything can be achieved — that anything is possible. That attitude generates excitement. You feel it in the air. It's one thing to talk about beliefs and values, and quite another to incorporate them into your organization. Actions, tactics, strategies, implementation, inspection, measurement, recognition and commitment are what is important. Words, alone, don't count. ▣

Buck Rodgers is retired vice president, marketing, for IBM. He has written two books, The IBM Way, *and* Getting the Best out of Yourself and Others.

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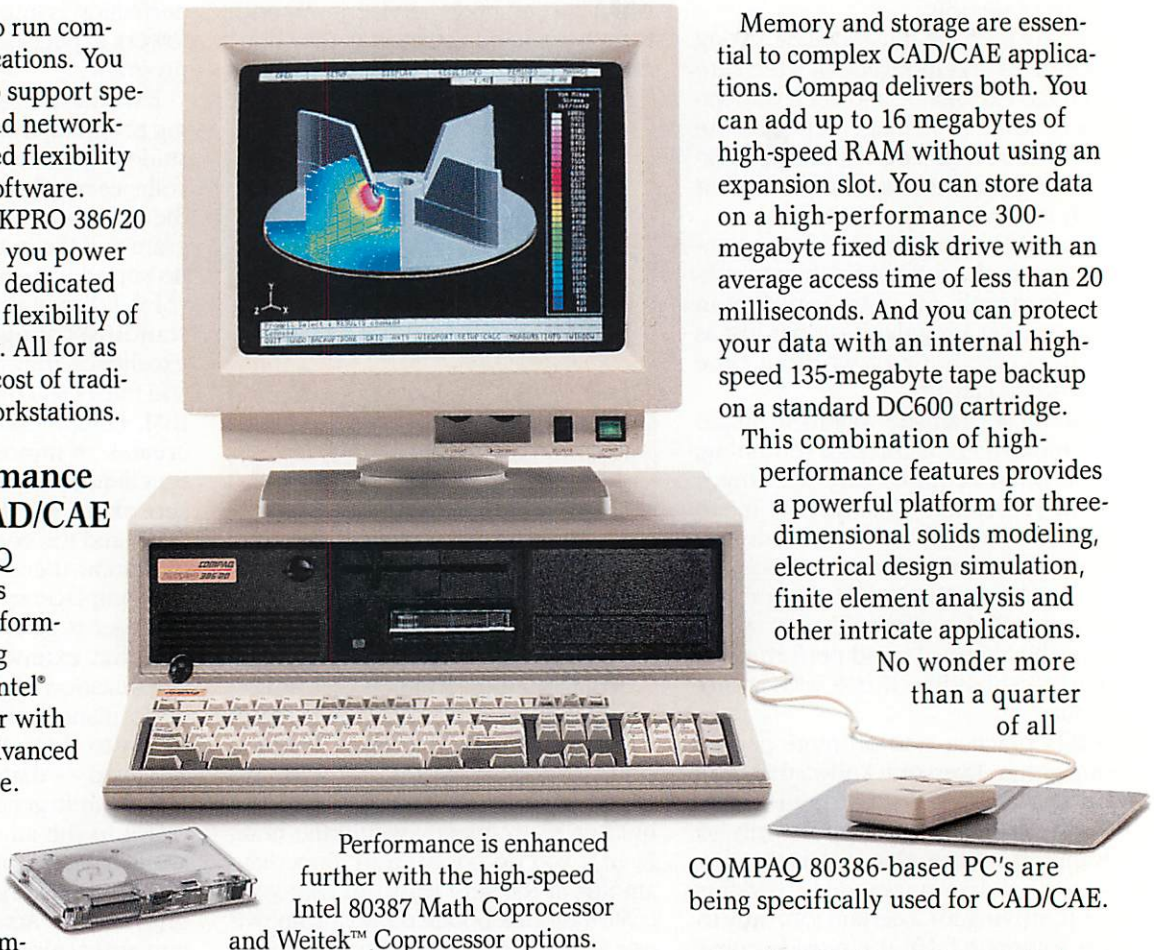

A 32-bit performance platform for CAD/CAE

We gave the COMPAQ DESKPRO 386/20 its workstation-level performance by surrounding a powerful 20-MHz Intel® 80386 microprocessor with COMPAQ Flexible Advanced Systems Architecture. This innovative 32-bit architecture optimizes overall system performance while maintaining compatibility with industry-standard hardware and software. Compaq accomplished this by combining an advanced memory caching scheme with memory and peripheral buses that operate concurrently.

Performance is enhanced further with the high-speed Intel 80387 Math Coprocessor and Weitek™ Coprocessor options. Both increase the speed of floating-point-intensive applications. In fact, the COMPAQ DESKPRO 386/20 with the Weitek is faster on standard benchmarks than comparably equipped workstations.

Memory and storage are essential to complex CAD/CAE applications. Compaq delivers both. You can add up to 16 megabytes of high-speed RAM without using an expansion slot. You can store data on a high-performance 300-megabyte fixed disk drive with an average access time of less than 20 milliseconds. And you can protect your data with an internal high-speed 135-megabyte tape backup on a standard DC600 cartridge.

This combination of high-performance features provides a powerful platform for three-dimensional solids modeling, electrical design simulation, finite element analysis and other intricate applications. No wonder more than a quarter of all COMPAQ 80386-based PC's are being specifically used for CAD/CAE.

The flexibility of multiple operating systems

The sophisticated 32-bit architecture of the COMPAQ DESKPRO 386/20 gives you the flexibility to work

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with the flexibility and cost of a PC.

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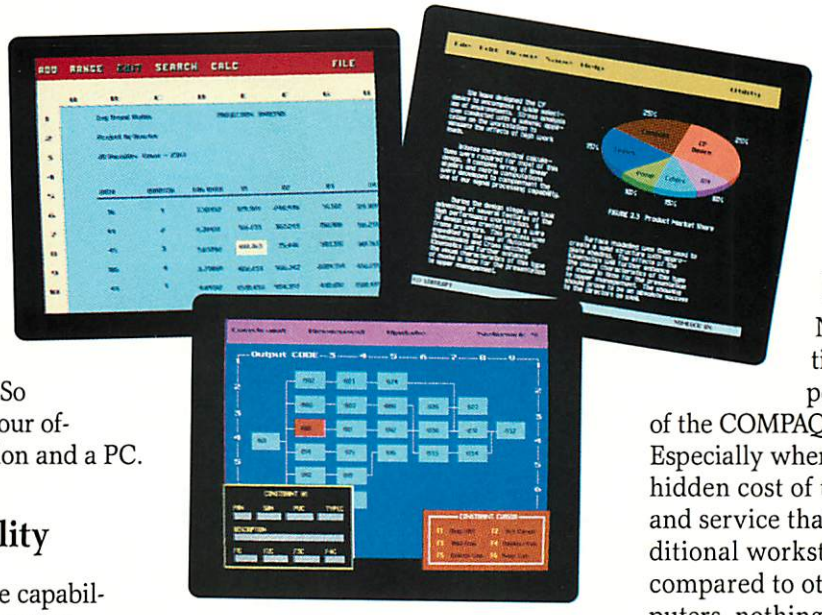

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Performance Benchmark	COMPAQ DESKPRO 386/20*	IBM PS/2™ Model 80-111†	SUN® 3/260*	APOLLO® DN 4000*
Dhrystones/sec.	7800	5514	7142	6250
MWhetstones/sec.	4.6	1.8	3.4	3.8
Linpack (KFLOPS)	900	630	865	800

*Using Weitek Coprocessor †Using 80387 Coprocessor

The COMPAQ DESKPRO 386/20 is faster on standard performance benchmarks than comparable workstations.

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